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CURTIS'S

BOTANICAL MAGAZINE,

ILLUSTRATING AND DESCRIBING

Plants of the Royal Botanic Gardens of Kew,

AND OF OTHER BOTANICAL ESTABLISHMENTS;

EDITED BY

D. PRAIN, C.I.E., LL.D., F.R.S.

DIRECTOR, ROYAL BOTANIC GARDENS, KEW.

VOL. VII.

OF THE FOURTH SERIES.

(*Or Vol. CXXXVII. of the Whole Work.*)

> "From many lands
> They form one social shade, as if convened
> By magic summons."
>
> COWPER.

LONDON:
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IS CORDIALLY DEDICATED.

Kew, December 1, 1911.

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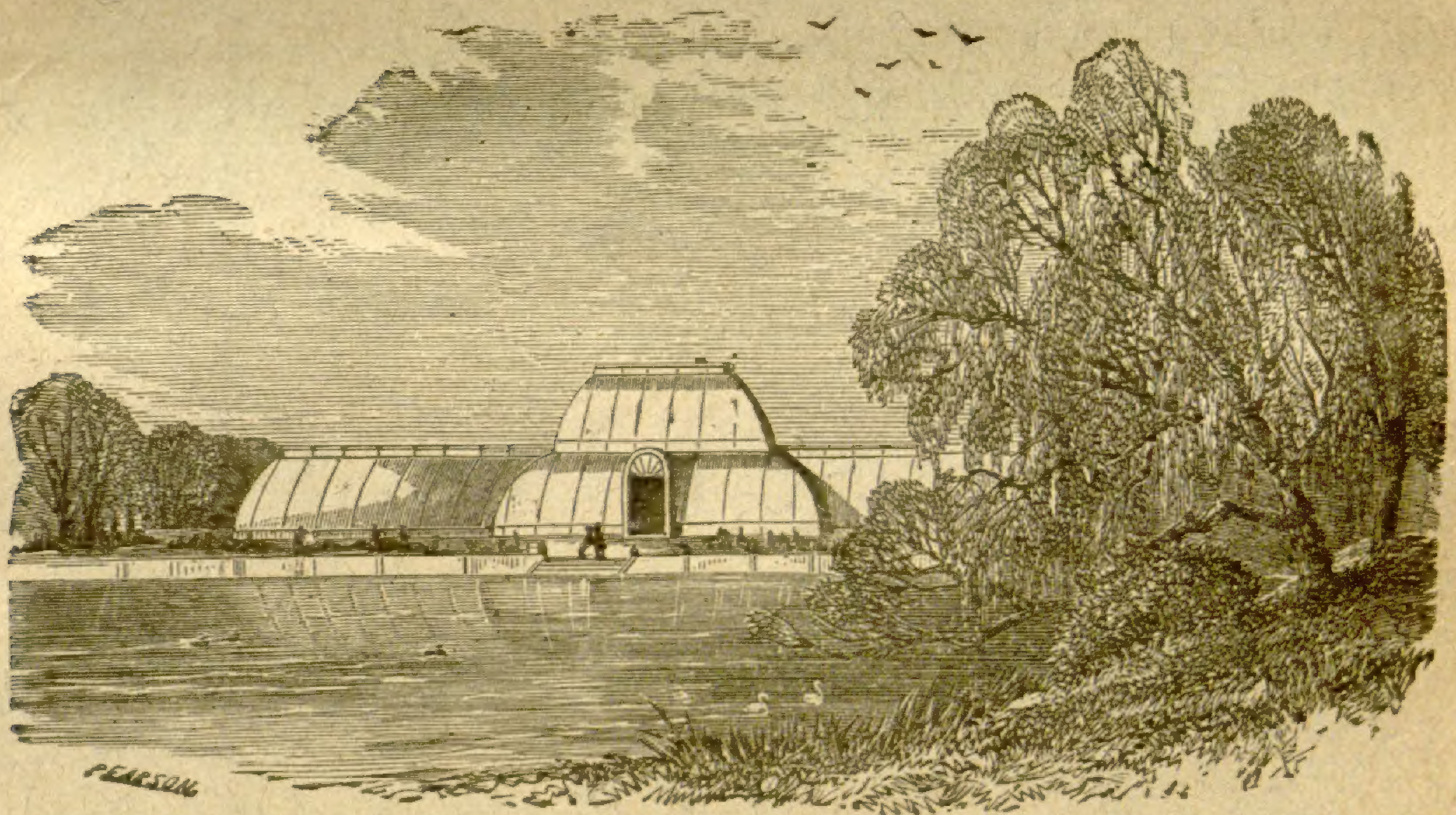

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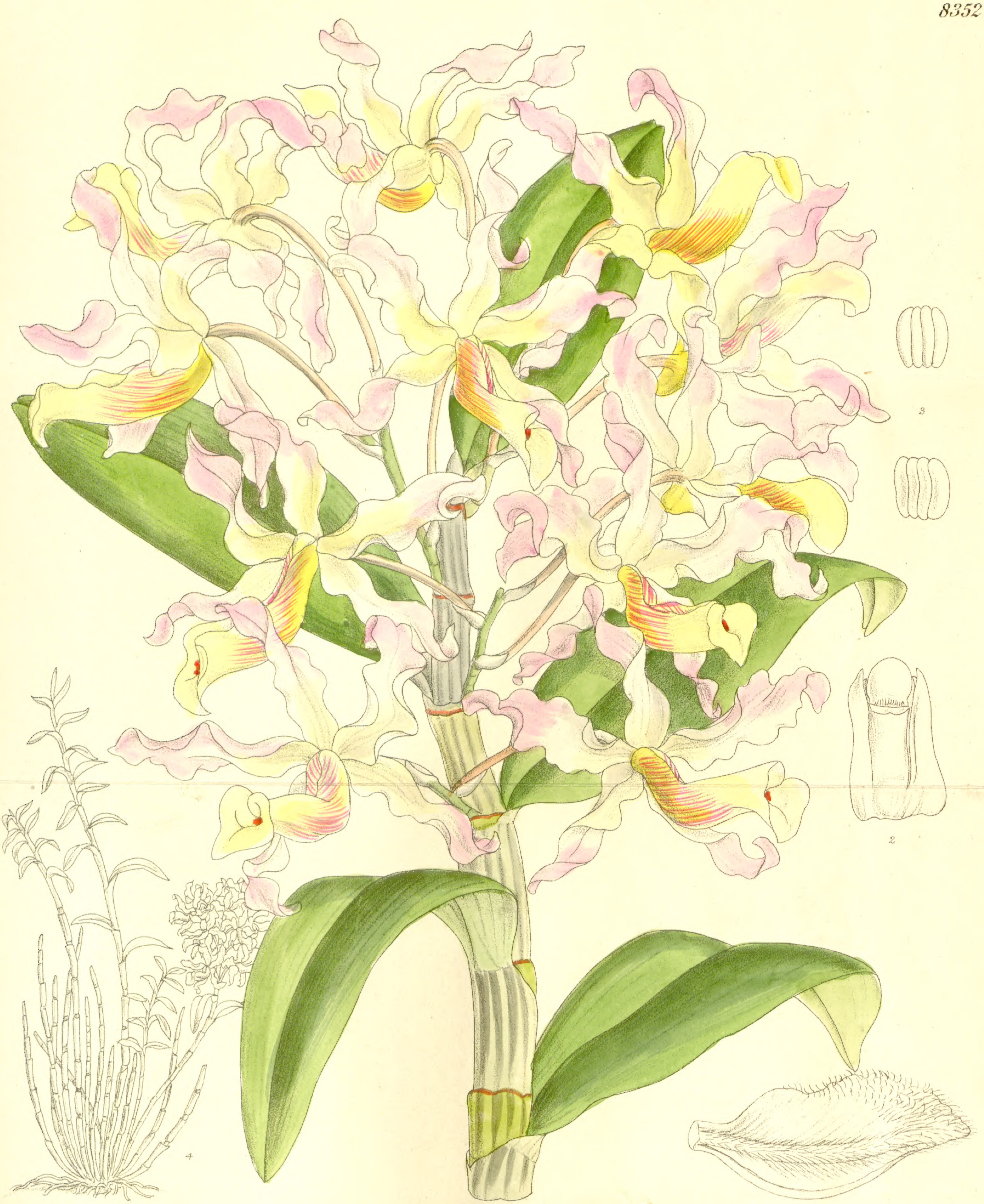

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TAB. 8352.

DENDROBIUM DARTOISIANUM.

Indo-China.

ORCHIDACEAE. Tribe EPIDENDREAE.

DENDROBIUM, *Swartz*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 498.

Dendrobium Dartoisianum, *De Wildem. in Gard. Chron.* 1906, vol. xxxix. p. 380; a *D. tortile,* Lindl. caule elongato cylindrico, sepalis petalisque magis tortilibus et undulatis, labello angustiore et valde convoluto differt.

Herba epiphytica. *Pseudobulbi* aggregati, elongati, cylindrici, 35–75 cm. longi, foliacei. *Folia* disticha, oblongo-lanceolata, subobtusa, patentia vel recurva, 9–10 cm. longa, 2·5–3·5 cm. lata. *Racemi* axillares, breves, 2–4 cm. longi, 2–4-flori. *Bracteae* oblongae, obtusae, convolutae, 6–8 mm. longae. *Pedicelli* graciles, 3·5–4 cm. longi. *Flores* speciosi, pallide lutei, sepalis petalisque apice purpureis, labello basi purpureo-lineato. *Sepala* patentia, lineari-oblonga, obtusa, irregulariter torta, 3–3·5 cm. longa. *Labellum* integrum late ellipticum, obtusum, basi convolutum, 4 cm. longum; discus velutinus. *Mentum* obtusum, 3 mm. longum. *Columna* lata, 6 mm. longa.—R. A. ROLFE.

The fine *Dendrobium* which forms the subject of our illustration was discovered in 1905 in Indo-China. The precise locality has not so far been indicated, but it is said to occur at about 1,750 feet above sea-level. It was introduced to cultivation by Mr. G. Bronckart along with another Indo-Chinese species, *D. Bronckartii,* De Wildem., figured at t. 8252 of this work, which is a native of Annam. The nearest ally of *D. Dartoisianum* is *D. tortile,* Lindl., a native of Chittagong and Burma, figured at t. 4477 of this work; the stems of *D. Dartoisianum* are, however, longer and more cylindric than those of *D. tortile,* the undulate sepals and petals are more markedly twisted, the base of the lip is narrower and more convolute and the coloration of the flowers is different. The plant from which our figure has been prepared was purchased for the Kew collection in 1906 from Mr. M. Verdonck, Ghent. It has been grown and flowered in a tropical house at Kew under the conditions suitable for the species of the group to which *D. nobile,* Lindl., belongs; during winter it is rested in an airy greenhouse.

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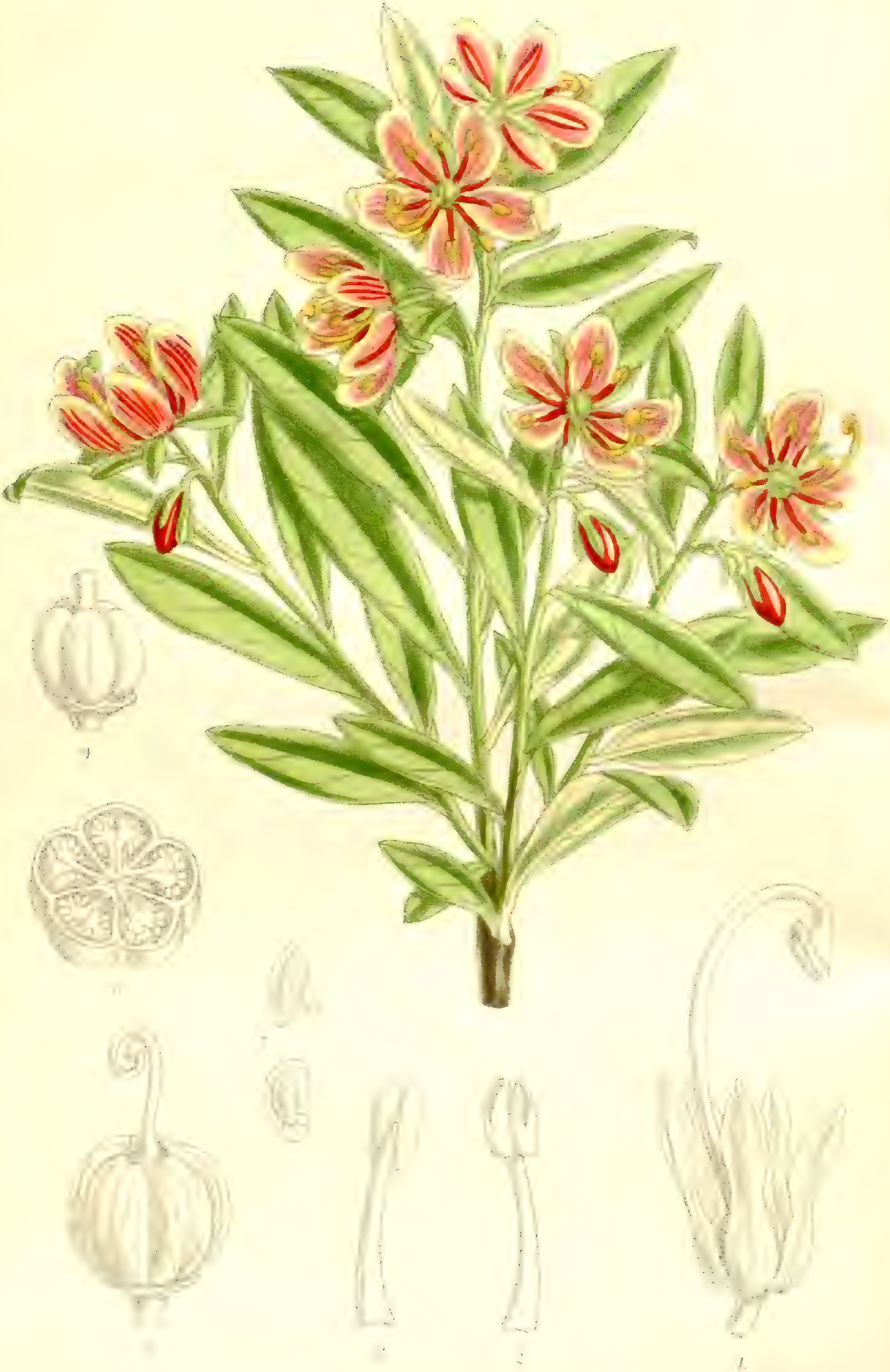
DESCRIPTION.—*Herb*; epiphytic; pseudobulbs clustered, cylindric, 1½–2½ ft. long, leafy. *Leaves* distichous, oblong-lanceolate, almost blunt, spreading or recurved, 3½–4 in. long, 1–1½ in. wide. *Racemes* short, ¾–1¾ in. long, 2–4-flowered; bracts oblong, blunt, convolute, ¼–⅓ in. long; pedicels slender, 1½–1¾ in. long. *Flowers* showy, pale yellow with purple-tipped sepals and petals and a purple-streaked lip-base. *Sepals* spreading, linear-oblong, blunt, irregularly twisted, 1¼–1½ in. long. *Petals* oblong, blunt, with undulate margins, irregularly twisted, 1½–1¾ in. long. *Lip* entire, wide elliptic, blunt, convolute at the base, 1¾ in. long; disk velvety. *Mentum* blunt, ⅛ in. long. *Column* wide, ¼ in. long.

Fig. 1, portion of labellum; 2, column; 3, pollinia; 4, sketch of an entire plant:—*all enlarged except* 4, *which is much reduced.*



TAB. 8353.

CLADOTHAMNUS PYROLAEFLORUS.

North-west America.

ERICACEAE. Tribe RHODOREAE.

CLAOTHAMNUS, *Bongard*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 598.

Cladothamnus pyrolaeflorus, *Bongard in Mem. Acad. Pétersb.* sér. vi. vol. ii.: *Veg. Sitcha*, p. 37, t. 1; *Sargent in Garden & Forest*, vol. x. 1897, p. 216, fig. 27; a specie altera, *C. campanulata*, Greene, foliis pedicellisque glabris et corolla rotata choripetala distinctissima.

Frutex, 1–3-metralis; rami graciles, juniores rubescentes, praeter lineas 2 minute rufo-puberulas glabri, vetusti cortice griseo vel griseo-fusco tecti. *Folia* subsessilia, lanceolata vel obovato-lanceolata, basi sensim attenuata, apice glanduloso-apiculata, 2–2·5 cm. longa, 7–10 mm. lata, tenuia, glabra, pallide viridia. *Flores* terminales in ramis foliatis saepe abbreviatis, solitarii vel perpaucis ex axillis summis ortis additis, nutantes; pedicelli breves vel demum ad 1·5 cm. longi. *Calycis* segmenta foliacea, lanceolata vel oblongo-linearia, apice glanduloso-incrassata, saepe inaequalia, circiter 1 cm. longa, supra basin constricta et utrinque ciliolata. *Petala* oblonga, obtusa, 1·5 cm. longa, tenuia, mox evanescentia, flavido-rubescentia vel flavido-rosea. *Antherae* superne rimis latis dehiscentes. *Stylus* incurvus, demum apice involutus, persistens. *Capsula* subglobosa, 5 mm. diametro, septicide 3–5-valvis. *Semina* minuta, compressa, ovoidea vel ellipsoidea, vix 0·5 mm. longa.—*Tolmiea occidentalis*, Hook. Fl. Bor. Am. vol. ii. p. 44.—O. STAPF.

The plant here figured is a native of Alaska, where, according to Professor Sargent, it grows along the borders of upland meadows, opening its flowers in succession during several weeks in summer. In addition to *C. pyrolaeflorus* there is, according to Professor Greene, another species of *Cladothamnus*, *C. campanulatus*, which inhabits the high mountains of British Columbia and Washington, and has been confounded with the Alaskan plant. *C. campanulatus*, Greene, is readily distinguished from *C. pyrolaeflorus* by having the petals united in a short tube; the anthers too are said to open differently. There is no example of this species, the characters assigned to which would appear to exclude it from the genus, in the herbarium at Kew; the only specimen in the collection to which the name *C. campanulatus* is attached is undoubtedly *C. pyrolaeflorus*, as indeed are all the specimens at Kew collected in British Columbia and Washington. *C. pyrolaeflorus* was

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discovered by Dr. C. H. Martens in the Island of Sitka in 1828, but is rarely met with in gardens. The material on which our illustration is based was obtained from a plant which flowered with Mr. T. Smith, Daisy Hill Nursery, Newry, in June, 1910. In localities otherwise suitable, the cultivation of *C. pyrolaeflorus*, if grown under the conditions necessary for *Rhododendron hirsutum*, is, Mr. Smith informs us, not attended by any difficulty.

DESCRIPTION.—*Shrub*; 4–10 ft. high; branches slender, when young reddish and glabrous except for two lines of very short reddish hairs, when mature covered with grey or tawny bark. *Leaves* almost sessile, lanceolate or obovate-lanceolate, gradually narrowed to the base, gland-tipped, $\frac{3}{4}$–1 in. long, $\frac{1}{3}$–$\frac{2}{5}$ in. wide, thin, glabrous, pale green. *Flowers* terminal on leafy often contracted branches, solitary or with a few additional blooms in the axils of the uppermost leaves, nodding; pedicels short or at length $\frac{2}{3}$ in. long. *Calyx-lobes* leafy, lanceolate or linear-oblong, gland-tipped, often unequal, about $\frac{2}{5}$ in. long, narrowed above the base and ciliolate on both surfaces. *Petals* oblong, blunt, $\frac{3}{5}$ in. long, thin, soon disappearing, yellowish-red or yellowish-rose. *Anthers* opening at the apex by wide chinks. *Style* incurved, ultimately almost circinate, persistent. *Capsule* subglobose, under $\frac{1}{4}$ in. wide, septicidally 3–5-valved. *Seeds* minute, compressed, ovoid or ellipsoid.

Fig. 1, calyx with pistil; 2 and 3, stamens; 4, ovary; 5, cross-section of ovary:—*all enlarged.*

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TAB. 8354.

AQUILEGIA FLABELLATA, var. NIVEA.

Japan and Sakhalin.

RANUNCULACEAE. Tribe HELLEBOREAE.

AQUILEGIA, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 8.

Aquilegia flabellata, *Sieb. & Zucc. Fl. Jap. Fam. Nat.* i., 1843, p. 75, var. **nivea,** *Hort.*; **floribus albis tantum a typo recedit.**

Herba, rhizomate ascendente lignoso simplice vel pauciramoso superne basibus persistentibus foliorum obtecto. *Caules* floriferi solitarii, erecti, 15–25 cm. longi, sparse pilosi, saepius triflori. *Folia radicalia* plura, longipetiolata, basi vaginantia, ternatim decomposita; foliola circumscriptione orbiculari-flabellata, trisecta, 2–5 cm. diametro, subtus glaucescentia; segmenta trilobata, lobis subrhomboideis iterum lobatis lobulis rotundatis. *Folia caulina* 2–3, petiolo usque ad apicem vaginante; segmenta circiter ad medium lobata. *Flores* cernui, albi; flos terminalis primum evolutus pedunculo circiter 5 cm. longo ebracteato; flores laterales pedunculati, pedunculis apice bracteatis, pedicellis 1–2 cm. longis. *Sepala* breviter unguiculata, ungue descendente 2–3 mm. longo; lamina basi abrupte sursum curvata, ovato-elliptica, leviter emarginata, 1·7 cm. longa, 1·2 cm. lata. *Petala* erecta, calcarata; lamina oblonga, saepius leviter emarginata, 1·3 cm. longa, 7–8 mm. lata, calcare circiter 1 cm. longo inferne valde curvato. *Stamina* circiter 40, in toro convexo radiatim 10-seriata, exteriora sensim minora; filamenta subulata; antherae ellipticae vel elliptico-oblongae. *Staminodia* in tubum 10-dentatum connata. *Carpella* 5–7, stricte erecta, arcte sibi adpressa, in angulo ventrali ciliata.—*A. flabellata*, var. fl. niv., Duren in Rev. Hort. Belge, 1889, p. 157.—T. A. SPRAGUE.

The *Aquilegia* which forms the subject of our plate is a white-flowered form of the Japanese *A. flabellata*, Sieb. & Zucc., which Franchet & Savatier in their Enumeratio Plantarum Japoniae, p. 11, have treated as identical with *A. glandulosa*, Fisch. This view is not, however, generally accepted; indeed the most recent view, advanced by Finet and Gagnepain (Contrib. Fl. As. Or. fasc. i. p. 155), is that *A. flabellata* may be no more than a variety of *A. sibirica*, Lamk, characterised by shorter stems and larger cauline leaves, and by having the limb of the petals not much shorter than the sepals. From the gardening point of view, however, *A. flabellata* must be regarded as sufficiently distinct from *A. sibirica* to deserve separate treatment. The stems of *A. flabellata* are generally three-flowered, having a terminal and two axillary flowers; of these the terminal

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opens first and then the lower of the axillary ones. The abrupt curve at the junction of the claw and blade imparts a cordate appearance to the base of the sepals. The plant from which the material for our figure was obtained flowered in the garden of Canon Ellacombe at Bitton, near Bristol, in May, 1909. The species thrives in a mixture of loam and peat.

DESCRIPTION.—*Herb*; rootstock ascending, woody, simple or sparingly branched, clothed upwards with persistent leaf bases. *Stem* solitary, erect, 6–10 in. high, sparingly hairy, generally 3-flowered. *Leaves* at the base several, long-petioled, the lower portion of the petioles sheathing, ternately decompound; leaflets orbicular-flabellate, 3-sect, $\frac{3}{4}$–2 in. wide, glaucescent beneath; segments 3-lobed, the lobes somewhat rhomboid and again divided into rounded lobes; stem-leaves 2–3, the petioles sheathing throughout; segments lobed almost to the middle. *Flowers* nodding, white, the terminal opening first, its peduncle bractless and about 2 in. long; the lateral on peduncles bracteate at their tips, with pedicels $\frac{1}{2}$–$\frac{3}{4}$ in. long. *Sepals* shortly clawed, the claw descending, about 1 lin. long, the blade abruptly upcurved at the base, ovate-elliptic, slightly emarginate, $\frac{2}{3}$ in. long, $\frac{1}{2}$ in. wide. *Petals* erect, spurred, blade oblong, often slightly emarginate, $\frac{1}{2}$ in. long, about $\frac{1}{3}$ in. wide, spur about 5 lin. long, strongly curved at the tip. *Stamens* about 40, radiately 10-seriate on the convex receptacle, gradually decreasing in size outwards; filaments subulate; anthers elliptic-oblong. *Staminodes* united in a 10-toothed tube. *Carpels* 5–7, quite erect, closely adpressed, ciliate along the ventral angle.

Figs. 1 and 2, stamens; 3, staminodes and pistil; 4, pistil:—*all enlarged.*

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Tab. 8355.

ASTER Falconeri.

North-western Himalaya.

Compositae. Tribe Asteroideae.

Aster, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 271.

Aster Falconeri, *Hutchinson in Gard. Chron.* 1910, vol. xlvii. p. 398; affinis *A. diplostephioidi,* Benth., sed foliis radicalibus breviter petiolatis denticulatis, caulibus ad apicem dense imbricatim foliatis, involucri bracteis 2-3-seriatis valde imbricatis marginibus dense et longe pilosis et floribus disci flavis differt.

Herba; rhizoma perennans. *Folia radicalia* numerosa, oblongo-oblanceolata vel oblanceolata, inferne sensim attenuata, apice subacuta vel mucronulata, 15–20 cm. longa, 4–5 cm. lata, tenuiter chartacea, remote denticulata, dentibus circiter 12 mm. distantibus, nervis lateralibus utrinque 6, supra paulo immersis subtus leviter elevatis, nervis transversis paucis cum costa subparallelis. *Caulis* monocephalus, ad apicem dense foliatus, circiter 40 cm. altus. *Folia caulina* lanceolata ad apicem acutum sensim acuminata, basi rotundata et semiamplexicaulia, majora 8 cm. longa, 3 cm. lata, minora 4 cm. longa, 1 cm. lata, integra, utrinque parce pubescentia, nervis lateralibus utrinque circiter 5 e costa crassa ascendentibus. *Capitulum* bracteis foliaceis exterioribus 4 cinctum, 9 cm. diametro. *Involucri bracteae* sub-3-seriatae, exteriores virides, lineari-lanceolatae, acutae, circiter 2 cm. longae et 3 mm. latae, extra dense pilosae, intus glabrae, interiores leviter pubescentes, margine paullo scariosae, apice filiformes. *Flores radii* numerosi; tubus 2·5 mm. longus, viridis, adpresse pilosus; lamina linearis, apice trifida, 4 cm. longa, 2·5 mm. lata, basin versus albida, ceterum subcoerulea; stylus exsertus; achaenia subcylindrica, 3 mm. longa, 1 mm. diametro, parce pilosa; pappus biseriatus, externus tenuis et paleaceus, lineari-lanceolatus, acutus, 2·5 mm. longus, minute serrulatus, internus filiformis, 6 mm. longus, minute barbellatus. *Flores disci* aurantiaci; tubus 5 mm. longus, in medio dilatatus et pilosus, ceterum glaber, inferne albo-viridis; antherae 2·5 mm. longae; pappus ut in floribus radii; achaenia 3 mm. longa, subquadrangularia, parce pilosa; stylus exsertus, lobis 1 mm. longis.—*A. diplostephioides*, var. *Falconeri*, C. B. Clarke, Comp. Ind. p. 45.—J. Hutchinson.

The handsome *Aster* here figured is a native of the mountains which surround the Valley of Kashmir, reaching its western limit, so far as available specimens go, in the Kamri Pass leading from the Kishn Ganga Valley south-east of Gilgit; it has not yet been found to the east of the Sutlej. Originally considered identical with *Aster diplostephioides*, Benth. a native of Sikkim and Eastern Nepal, figured at t. 6718 of this work, our plant was first recognised as distinct by the late Mr. C. B. Clarke who,

January, 1911.

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[illegible]

[illegible]

TAB. 8356.

PHAEDRANASSA CARMIOLI.

Costa Rica.

AMARYLLIDACEAE. Tribe AMARYLLEAE.

PHAEDRANASSA, *Herb.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 732; *Engl. & Prantl, Nat. Pflanzenf.* vol. ii. pars v. p. 115.

P. Carmioli, *Baker in Saunders, Refug. Bot.* t. 46; *Handb. Amaryll.* p. 108; *P. chloracrae*, Herb., affinis, perianthii segmentis angustioribus tuboque tenuiore supra ovarium haud constricto differt.

Herba; bulbus subglobosus, 5–7·5 cm. diametro, subito in collo brevi contractus, tunicis membranaceis brunneis vestitus. *Folia* 1–3, synanthia, oblanceolata, obtusa, 35 cm. longa, 5·5 cm. lata, costata, glabra, glauca, membranacea; nervi utrinque circiter 20, tenues; petiolus 20 cm. longus, supra canaliculatus. *Scapus* erectus, 60 cm. altus, teres; spathae 6, anguste lanceolatae, membranaceae; umbella 5–10-flora; pedicelli graciles ad 20 cm. longi. *Perianthium* anguste infundibuliforme, 4 cm. longum, coccineum, supra viride luteo-marginatum; tubus 1 cm. longus; lobi oblanceolati, apice subobtusa incrassati, parte inferiore membranaceo-marginati. *Stamina* prope apicem tubi affixa; filamenta paullo exserta; antherae ellipticae, 3 mm. longae, dorsifixae. *Ovarium* ellipticum, 1 cm. longum, viride; stylus filiformis, stamina superans; stigma punctiforme. —C. H. WRIGHT.

According to the arrangement adopted by Mr. Baker in the Handbook of the Amaryllideae the genus *Phaedranassa* includes four species from the Andes of Ecuador or Colombia, with a fifth, the subject of our plate, which is a native of Costa Rica. One of the Andean species, *P. chloracra*, Herb. (sometimes written "chloracea"), is not uncommon in collections in a variety of forms which differ mainly as to the number, size and colour of their flowers. To some of these forms distinctive names have been given, and one of them has been figured at t. 5361 of this work as *P. obtusa*, Herb. To this rather variable species *P. Carmioli*, here figured, is closely allied. The membranous margins of the perianth-lobes in our species overlap and, while not organically united, mutually adhere. On this account an appearance of having a long corolla tube with short perianth-lobes, in place of the short tube characteristic of all the Andean forms, is imparted to the Costa Rica plant, which was introduced to cultivation by Mr.

JANUARY, 1911.

Jules Carmiol and was first flowered, in 1867, by the late Mr. Wilson Saunders. It has flowered since then with Mr. J. O'Brien, Harrow-on-the-Hill, with Mr. A. Worsley, Isleworth, with Mr. W. E. Ledger, Wimbledon, and possibly elsewhere. The plant from which our figure has been prepared flowered in March, 1910, with Mr. W. E. Gumbleton, to whose garden at Belgrove, Queenstown, the bulb had been sent two years previously from that of Mr. Ledger, who, while failing with the other species, has, he informs us, once flowered the Ecuadorean *P. viridiflora*, Baker, and has found it comparatively easy to flower *P. Carmioli*. The plant thrives well in a cool stove, and with care may succeed in an ordinary heated greenhouse; it is not fastidious as to soil, and grows satisfactorily in a mixture of peat or leaf mould and yellow loam, to which sand should be added. It is deciduous and requires complete rest after the leaves die down. The tall flower stalk precedes the leaves, which, however, develop while the plant is in flower.

DESCRIPTION.—*Herb*; bulb nearly globose, 2 3 in. wide, abruptly narrowed to a short neck and clothed with brown membranous sheaths. *Leaves* 1–3, appearing during flowering time, oblanceolate, obtuse, 14 in. long, about 2 in. wide, glabrous, glaucous, membranous, with a pronounced midrib and about 20 slender veins on each side; petiole 8 in. long, channelled above. *Scape* erect, 2 ft. high, cylindric; spathes 6, narrow lanceolate, membranous; umbel 5–10-flowered; pedicels slender, ½–¾ in. long. *Perianth* narrowly funnel-shaped, 1½ in. long, the lower two-thirds scarlet, the upper third green with yellow margins; tube 5 lin. long; lobes oblanceolate, with rather blunt thickened tips, with membranous margins lower down. *Stamens* attached near the top of the tube; filaments shortly protruded; anthers elliptic, dorsifixed, 1½ lin. long. *Ovary* elliptic, green, 5 lin. long; style filiform, longer than the stamens; stigma minute.

Fig. 1, corolla in vertical section, showing ovary, style, and stamens; 2 and 3, anthers; 4, apex of style and stigma:—*all enlarged*.

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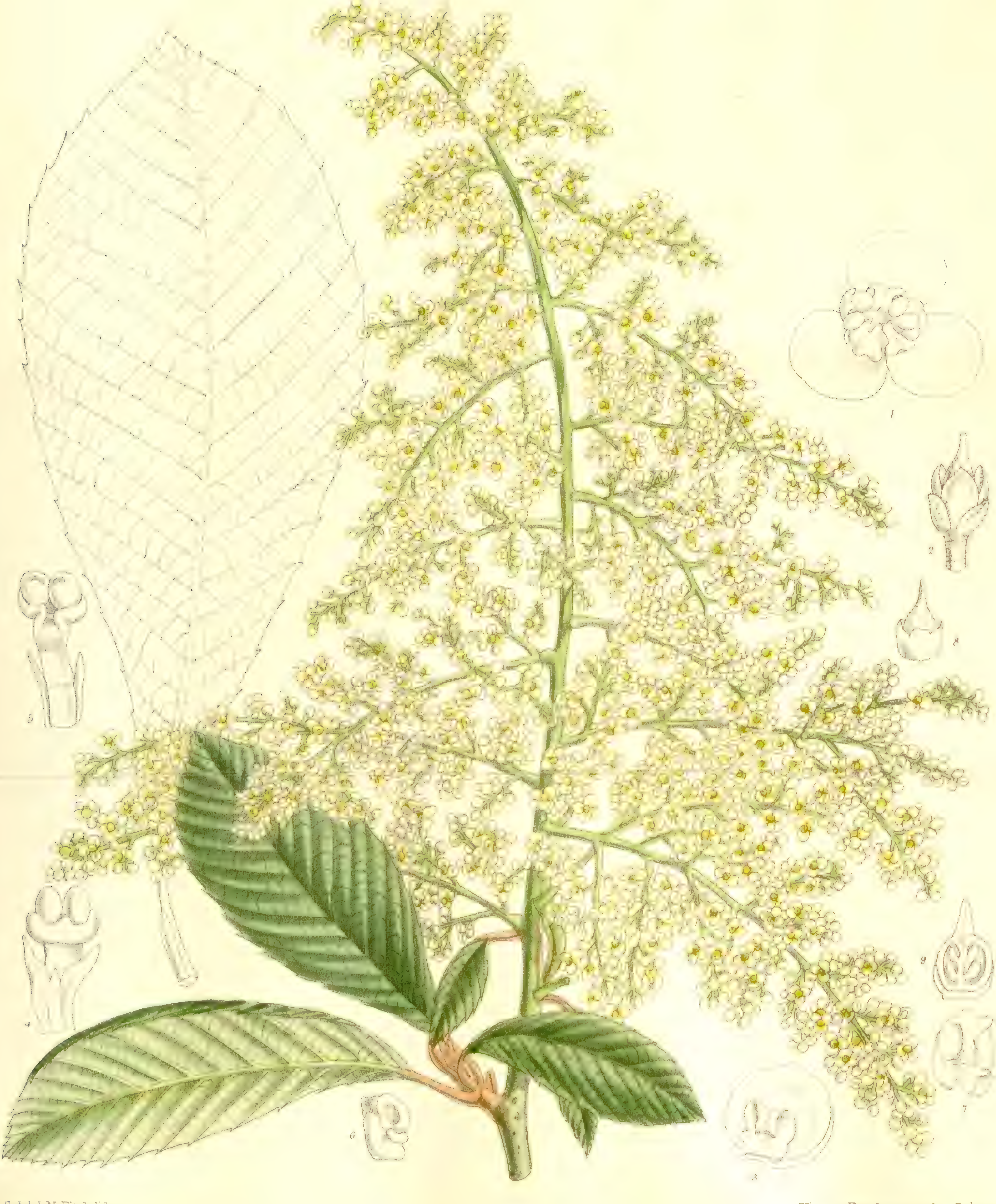

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TAB. 8357.

MELIOSMA CUNEIFOLIA.

Western China.

SABIACEAE.

MELIOSMA, *Blume*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 414.

Meliosma cuneifolia, *Franch. in Nouv. Archiv. Mus. Paris,* ser. ii. vol. viii. p. 211; affinis *M. myrianthae,* Sieb. et Zucc. et *M. dilleniaefoliae,* Wall.; ab illa foliis basi angustatis cuneatis, ab hac foliis minoribus angustioribus costa nervisque exceptis utrinque glabris facile distinguitur.

Arbor vel *frutex,* cortice glabro. *Folia* anguste obovato-cuneata, e basi longe attenuata, apice acuta interdum abrupte et breviter acuminata, 6-18 cm. longa, 1·5-7 cm. lata, repando-denticulata vel fere dentata, chartacea, utrinque glabra costa nervisque puberulis exceptis et praeterea ad axillas nervorum lateralium barbata, nervis lateralibus numerosis utrinque 20-25 parallelis in foliis maturatis circiter 5 mm. distantibus supra paullo immersis subtus prominentibus, venis inconspicuis; petioli ad 2 cm. longi, supra canaliculati, parce puberuli. *Panicula* pyramidalis, ampla, multiflora, circiter 20 cm. longa et lata; rhachis leviter angulata, puberula, ramis primariis patentibus vel subpendulis ad 10 cm. longis, ramis secundariis florentibus ad 1·5 cm. longis; pedicelli circiter 2 mm. longi, dense puberuli; bracteolae minimae, ovato-deltoideae, ciliolatae, persistentes. *Flores* viridi-flavi, 6 mm. diametro. *Sepala* 5, ovata vel ovato-rotundata, coriacea, ciliolata, extus concava, glabra, petalis triplo minora. *Petala* 5, valde inaequalia; 3 exteriora orbicularia, subcoriacea, 3 mm. lata, glabra, striata; 2 interiora parva, membranacea, profunde biloba. *Stamina* 5, petalis opposita, inaequalia, basi cum petalis cohaerentia, 2 majora perfecta, 3 ananthera ante petala majora, filamentis planis glabris; antherae magnae, globosae. *Discus* cupularis, inaequaliter lobatus vel dentatus, carnosus. *Ovarium* ellipsoideum, glabrum vel papillosum vel pubescens; stylus conicus, glaber. *Fructus* subglobosus integer vel bilobus, 3-5 mm. diametro.—J. HUTCHINSON.

The handsome species here figured was first discovered by the Abbé David in June, 1869, in the mountains of Moupine. Since then it has been met with on Mount Omi in Szechuan by the Rev. E. Faber, in the Patung district of Hupeh by Mr. A. Henry, and in valleys on the eastern flank of the Li-Kiang range in North-western Yunnan by Mr. G. Forrest. It was also found again on Mount Omi by Mr. E. H. Wilson when collecting on behalf of Messrs. J. Veitch & Sons, in whose nursery at Coombe Wood

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plants raised from seed obtained by Wilson have proved quite hardy. From one of these plants, which flowered in July, 1909, was obtained the material on which our figure is based. The genus *Meliosma* has a special interest for growers of ornamental shrubs owing to its being the only genus of the family *Sabiaceae* members of which can be grown in the open air in the average climate of Great Britain. Indeed, prior to the introduction of *M. cuneifolia*, the only one that had flowered in England was *M. myriantha*, Sieb. & Zucc., which is, however, much more tender, and is only suitable for the mildest parts of this country. Botanically the two species are very closely allied, and our plant differs chiefly from *M. myriantha*, which is a native of Japan and Corea, in having the leaves narrowly cuneate at the base. Another very nearly allied species is *M. dilleniaefolia*, Wall., from Northern India; from this latter, which is not hardy, our plant is readily distinguished by its smaller leaves, which are glabrous except on the midrib and lateral nerves. A third species, *M. Veitchiorum*, Hemsl. (Kew Bulletin for 1906, p. 155, and for 1910, p. 173, with plate), from the highlands of Central China, also nearly allied but with much larger and entire leaflets, shares with our plant the advantage of being hardy out of doors in Southern England. There is a considerable degree of variation in the amount of tomentum on the ovary in *M. cuneifolia*; the original specimens on which the species was based have distinctly pubescent ovaries, while those raised from Wilson's seed have the ovaries quite glabrous. Intermediate conditions, however, occur, and in other respects the specimens are identical. In a wild state *M. cuneifolia* attains the dimensions of a tree; in cultivation the plants, which now flower annually in July, form healthy bushes 4–5 feet high. They have not yet ripened fruits, so that for their propagation recourse will probably have to be had to layering.

Description.—*Tree* or shrub; bark glabrous. *Leaves* narrowly obovate-cuneate, acute or at times shortly and abruptly acuminate, gradually narrowed to the base, margin repandly toothed, 2½–7 in. long, ½–3 in. wide, firm, puberulous along the midrib and nerves and with tufts of hairs in the nerve angles beneath, elsewhere glabrous;

lateral nerves 20–25 on each side, parallel and nearly straight, in older leaves about 2 lin. apart, somewhat sunk above, prominent beneath; cross-veins inconspicuous; petiole reaching $\frac{3}{4}$ in. in length, channelled above, sparingly puberulous. *Panicle* pyramidal, many-flowered, about 8 in. across; rachis faintly angular, puberulous; main branches spreading or somewhat pendulous, reaching 4 in. in length; secondary floriferous twigs 7–8 lin. long; pedicels about 1 lin. long, closely puberulous; bracteoles minute, ovate deltoid, ciliolate, persisting. *Flowers* greenish-yellow, 3 lin. wide. *Sepals* 5, ovate or rounded ovate, very firm, ciliolate, concave outwards, glabrous, one-third shorter than the petals. *Petals* 5, very unequal; 3 outer orbicular, firm, 1½ lin. wide, glabrous, striate; 2 inner small, membranous, deeply 2-lobed. *Stamens* 5, opposite and united at the base to the petals, unequal; 2 larger perfect, 3 without anthers opposite the larger petals; filaments flat, glabrous; anthers large, globose. *Disk* fleshy, cup-like, unequally lobed or toothed. *Ovary* ellipsoid, glabrous or papillose or pubescent; style conical, glabrous. *Fruit* subglobose, entire or 2-lobed, 2–3 lin. in diameter.

Fig. 1, flower; 2, calyx and pistil; 3, larger petal with barren stamen; 4 and 5, fertile stamens with smaller petals; 6 and 7, heads of barren stamens; 8, pistil and disk; 9, ovary in longitudinal section:—*all enlarged.*

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TAB. 8358.

KENNEDYA BECKXIANA.

Australia.

LEGUMINOSAE. Tribe PHASEOLEAE.
KENNEDYA, *Vent.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 531.

Kennedya Beckxiana, *F. v. Muell. Fragm.* xi. p. 98; affinis *K. macrophyllae*, Benth., sed indumento parciore foliolis minoribus pedunculis brevioribus 2-floris ovario stipitato differt.

Herba volubilis, perennis; ramuli graciles, rubescentes, fere glabri. *Folia* pinnatim trifoliolata; stipulae lanceolatae, acutae, 6 mm. longae, rigidiusculae, mox deflexae; petioli ad 5 cm. longi, supra canaliculati; foliola breviter petiolulata apice rotundata vel fere truncata, mucronata, basi obtusa vel fere truncata, ad 8 cm. longa, 5 cm. lata, chartacea, utrinque fere glabra, terminale obovatum vel obovato-ellipticum, a lateralibus ellipticis parum inaequalibus circiter 2 cm. distans, nervis lateralibus utrinque 5–6 intra marginem arcuatis cum nervulis supra prominulis subtus conspicuis; stipellae lateralium ad 5 mm. longae terminalis paulo breviores. *Pedunculi* axillares, flores duos gerentes, 1 cm. longi, prope basin bracteato-involucrati, involucro e bracteis duabus apice acuminatis coalitis infundibulari-orbiculari transverse 1·3 cm. lato rigidiusculo ciliolato; pedicelli pedunculo paulo breviores, parce pilosuli. *Calyx* bilabiatus, pedunculo aequilongus, viridis nisi inter lacinias basi rubromaculatus, extus parce appresse pilosulus, intus fere sericeo-pubescens; tubus labiis fere duplo longior, 5 mm. diametro; labium superum ovatum, breviter bidentatum, inferum supero aequilongum in lacinias 3 late lanceolatas acutiusculas partitum. *Corolla* longe exserta, vix 4 cm. longa, petalis omnibus subaequilongis glabris vexilli basi excepto coccineis; vexillum reflexum, ovatum, obtusum, 2·7 cm. latum, basi breviter auriculatum, 2-callosum, macula viridi-sulphurea nigro-marginata oblonga 1 cm. longa 6 mm. lata ornatum, stipite fere 3 mm. longo; alae oblongae, obtusae, appendiculatae, circiter 5 mm. latae, stipite 5 mm. longo, medio carinae leviter adhaerentes; carina oblongo-falcata, acutiuscula, appendiculata, 7 mm. lata, more alarum stipitata. *Stamen* vexillare omnino liberum. *Pistillum* 4–5 cm. altum, glabrum; ovarium 1·5 cm. altum, stipite 7 mm. longo, stylo filiformi stigmate parvo capitato.—W. G. CRAIB.

The striking *Kennedya* which forms the subject of our figure was raised at Kew from seed purchased in 1908 from Mr. J. Staer, Wahroonga, New South Wales. The plant from which the material for our plate was obtained has grown vigorously in a greenhouse, twining along a rafter after the manner of *K. rubicunda*, Vent. It flowered for the first time in April, 1910, and has been identified by Mr. Craib, from the original description, with *K. Beckxiana*, F. v. Muell., a species based on material collected by Mr. W. Webb in South-western Australia inland from King George's Sound, of which there is no authentic specimen in the herbarium at Kew. It appears to be the largest

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flowered of the Kennedyas so far introduced to cultivation, and is most nearly allied to *K. macrophylla*, Benth., but is readily distinguished by its smaller leaflets, its shorter 2-flowered peduncles, its stalked ovary and its more sparing pubescence. From *K. rubicunda*, above mentioned, it differs in having constantly 2-flowered peduncles and a glabrous pistil; the same characters separate it from *K. nigricans*, Lindl., a species figured at t. 3652 of this work.

DESCRIPTION.—*Herb*, climbing, perennial; branches slender, reddish, almost glabrous. *Leaves* pinnately 3-foliolate; stipules lanceolate, acute, 3 lin. long, rather rigid, becoming deflexed; petioles up to 2 in. long, channelled above; leaflets shortly stalked, tips rounded or almost truncate, bases obtuse or almost truncate, up to 3 in. long, 2 in. wide, firm, glabrous on both sides; terminal leaflet obovate or obovate-elliptic, about 10 lin. remote from the elliptic, slightly unequal lateral ones; lateral nerves 5–6 on each side, curved along the margin and like the secondary veins prominent above and distinct beneath; stipels of lateral leaflets 2½ lin. long, those of terminal leaflet shorter. *Peduncles* axillary, 2-flowered, 5 lin. long, with a rather flattened rigid involucre about ½ in. wide composed of 2 connate acute ciliate bracts; pedicels sparingly hairy, shorter than the peduncles. *Calyx* 2-lipped, as long as the pedicel, green with reddish markings at the base between the lobes, sparingly pubescent outside, silky hairy within; upper lip ovate, shortly 2-toothed, lower as long, with 3 rather pointed wide lanceolate lobes. *Corolla* much exserted, about 1½ in. long, petals of about the same length, red except for a greenish-yellow, dark-margined patch at base of standard; standard reflexed, ovate, obtuse, over 1 in. wide, slightly auriculate and 2-callose at the base, its claw 1½ lin. long; wings oblong, obtuse, appendiculate, about 2½ lin. wide, slightly adherent to keel in the middle, their claw 2½ lin. long; keel oblong-falcate, rather acute, appendiculate, 3½ lin. wide, clawed like the wings. *Vexillary stamen* quite free. *Pistil* nearly 2 in. long, glabrous; ovary ¾ in. long, stipe 3½ lin. long; style filiform; stigma small capitate.

Fig. 1, calyx laid open, showing stamens and pistil; 2, base of standard; 3, wing-petal; 4, keel-petal; 5, ovary :—*all enlarged.*

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TAB. 8359.

URCEOCHARIS EDENTATA.

Peru.

AMARYLLIDACEAE. Tribe AMARYLLEAE.

URCEOCHARIS, *Mast. in Gard. Chron.* 1892, vol. xii. p. 214.

Urceocharis edentata, *C. H. Wright in Kew Bulletin,* 1910, p. 24; ab *U. Clibrani,* Mast., corona inter filamenta inappendiculata differt.

Herba; bulbus tunicis brunneis membranaceis vestitus; collum breve, 1·3 cm. diametro. *Folium* solitare, elliptico oblongum, breviter acuminatum, basi cuneatum angulis exterioribus rotundatis, glaberrimum, 15 cm. longum, 8 cm. latum; costa supra canaliculata, subtus lata prominensque. *Scapus* terminalis, 20 cm. altus, 5 mm. diametro, dilute viridis, circa 4-florus; bracteae brunneae, 2·5 cm. longae, 5 mm. latae, scariosae; pedicelli 1·5 cm. longi. *Perianthium* album, prope apicem extus cremeum; tubus cylindricus, 2 cm. longus, 2 mm. diametro; limbus late campanulatus, 4·5 cm. diametro; lobi elliptici, acuti, 4 cm. longi, 1·5 cm. lati. *Stamina* exserta; filamenta basi dilatata connataque. *Ovarium* 8 mm. longum, trilobum; ovula pauca.—C. H. WRIGHT.

In 1892 the late Dr. M. T. Masters gave a description in the Gardeners' Chronicle of an interesting hybrid which had been raised by Messrs. Clibran. The parents of this hybrid were *Urceolina pendula*, Herb., figured at t. 5464, and *Eucharis grandiflora*, Planch., figured at t. 4971 of this work; the name given to the plant was *Urceocharis Clibrani.* Two years ago the plant now figured was acquired for the Kew Collection by purchase from Messrs. Sander & Sons, St. Albans. This plant had been forwarded from Peru by the firm's collector, Mr. Forget, who, it is understood, had met with it in a wild state and in a remote part of that country. It flowered in a moist tropical house at Kew in July, 1909; another specimen, identical in every respect, flowered at St. Albans in January, 1910. So nearly allied to *Urceocharis Clibrani*, Mast., is this Peruvian form, which Mr. Wright has described as *Urceocharis edentata*, that there is hardly room for doubt as to its being another hybrid, perhaps identical as to parentage with Messrs. Clibran's plant, but in this case probably a natural one. The two plants referred to *Urceocharis* have a perianth with a narrowly cylindric tube and a campanulate limb, the lobes of which curve outwards at the apex only as in *Urceolina*, and not, as in *Eucharis*, almost at right angles to the tube. They further agree with *Urceolina* in being deciduous. The flowers of *Urceolina* are either devoid of a staminal corona or possess one that is quite rudimentary; those of *Eucharis* have a distinct corona with free teeth between the bases of the filaments. In the hybrid raised by Messrs. Clibran there are two such teeth about one-third the length of the filaments between each pair of stamens. But in the presumably wild plant sent by Forget from Peru, which in every other respect is indistinguishable from *Urceocharis Clibrani*, there is no trace of these appendages.

DESCRIPTION.—*Herb*; bulb clothed with brown membranous sheaths; neck short, $\frac{1}{2}$ in. thick. *Leaf* solitary, deciduous, elliptic-oblong, shortly acuminate, base cuneate with rounded outer angles, quite glabrous, 6 in. long, 3 in. wide; midrib channelled above, broad and pronounced beneath. *Scape* terminal, 8 in. long, $2\frac{1}{2}$ lin. thick, pale-green, 4–5-flowered; bracts brown, scarious, 1 in. long, $2\frac{1}{2}$ lin. wide; pedicels $\frac{2}{3}$ in. long. *Perianth* white, pale-yellow towards the tips of the segments, especially externally; tube cylindric, $\frac{3}{4}$ in. long, 1 lin. wide; limb wide campanulate, $1\frac{3}{4}$ in. across; lobes elliptic, acute, $1\frac{1}{2}$ in. long, $\frac{2}{3}$ in. wide. *Stamens* exserted; filaments dilated and united at the base. *Ovary* 4 lin. long, 3-lobed; ovules few.

Fig. 1, androecium; 2 and 3, anthers; 4, apex of style:—*all enlarged except* 1, *which is of natural size.*

8360

M.S. del. J.N.Fitch lith.

Vincent Brooks, Day & Son Lt^d imp

TAB. 8360.

PRUNUS MICROCARPA.

Orient.

ROSACEAE. Tribe PRUNEAE.

PRUNUS, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 609.

Prunus microcarpa, *C. A. Mey. Enum. Casp.* p. 167; *C. K. Schneid. Handb. d. Laubholzk.* vol. i. p. 604, fig. 337 s–t et fig. 338 f, cum varietate *tortuosa*, p. 605, fig. 337 w–x et fig. 338 g–h; inter species sectionis *Microcerasi* floribus fructibusque distincte vel longiuscule pedicellatis distincta.

Frutex humilis vel ad 2 m. altus, valde variabilis; rami virgati vel divaricati, rigidi vel tortuosi, juniores saepe pubescentes demum glabrescentes rarius glabri, cortice castaneo vel fusco tecti. *Folia* late ovata vel ovato-elliptica vel lanceolato-oblonga, subacuta, serrato-dentata, 1–3 cm. longa, 0·7–2 cm. lata, glabra vel plus minusve pubescentia; petioli tenuiter pubescentes, 1·5–5 mm. longi; stipulae e basi fimbriata subulatae, ad 6 mm. longae. *Flores* perpauci, plerumque bini, in brachycladiis foliatis brevissimis cum foliis vel paulo antea evoluti; pedicelli tenuiter pubescentes vel glabri, 3–12 mm. longi. *Receptaculum* rubescens, late cylindricum, post fecundationem medio constrictum, 3–4 mm. longum, glabrum vel ima basi pubescens. *Sepala* ovata, ciliata, 1–1·5 mm. longa. *Petala* albo-rosea vel alba, obovata, circiter 5 mm. longa. *Fructus* ovoideus, acutiusculus, 0·7–1 cm. longus, in planta spontanea ruber vel luteus.—*P. diffusa*, C. K. Schneid. Handb. d. Laubholzk. p. 606, fig. 337 u–w et fig. 338 i. *Cerasus microcarpa* Boiss. Fl. Or. vol. ii. p. 646. *C. tortuosa* et *C. diffusa*, Boiss. et Hausskn. Fl. Or. vol. ii. p. 647.—O. STAPF.

The little Cherry here figured was acquired for Kew from Zoeschen in 1900 and has been grown in the *Prunus* collection ever since. It is a form of *P. microcarpa*, C. A. Mey., originally described from specimens collected on Mount Bashbarmak, north of Baku, which represent a state with glabrous leaves and finely pubescent young twigs. A state with rigid divaricate or tortuous branches, distinctly pubescent all over, was later treated by Boissier and Haussknecht as a distinct species, *Cerasus tortuosa*. The same authors based on specimens from South Persia, more diffuse in habit and with smaller leaves and flowers, another species, *Cerasus diffusa*. But Bornmueller, who collected *P. microcarpa* on the hills around Erbil in North-eastern Mesopotamia, found the plant to vary, in the same locality, as to pubescence, length of fruit-stalk and colour of fruit. Dr. Stapf, who knows *P. microcarpa* on the hills and mountains near

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to and southwards from Shiraz, where it usually forms a small shrub with stiff spreading or tortuous branches, found it as variable there as in Mesopotamia as regards pubescence and fruit. Herbarium material shows that from Syria and Western Kurdistan to Chorassan and Southern Persia it is everywhere as variable. Dr. Stapf therefore concludes that *P. microcarpa* should be treated as a species very variable not only in habit and stature, which depend greatly on the physical conditions under which it grows, but as to pubescence, length of fruit-stalk, size of leaf and size and colour of fruit which vary independently. The form depicted represents a state which most resembles *Cerasus tortuosa*, Boiss. & Hausskn., but differs therefrom in having, even in the unfolding buds, practically glabrous leaf-blades, though the petioles, like the twigs, are pubescent. This form comes from Asia Minor. Under cultivation it loves sunshine and should be given a southern exposure. It appears perfectly hardy and flowers prettily in May. Under our dull skies it fails to fruit freely, and such fruits as do form are liable to fall while still green.

DESCRIPTION.—*Shrub*, often dwarf, at most 7 ft. high, very variable in habit, branches virgate or spreading, rigid or tortuous, usually at first pubescent, occasionally glabrous, bark dark brown or tawny. *Leaves* wide ovate or ovate-elliptic or lanceolate-oblong, subacute, serrate, $\frac{1}{3}$–$1\frac{1}{4}$ in. long, $\frac{1}{4}$–$\frac{3}{4}$ in. wide, glabrous or more or less pubescent; petioles thinly pubescent, 1–3 lin. long; stipules $\frac{1}{4}$ in. long, subulate from a fimbriate base. *Flowers* very few, often only 2, on short leafy twigs appearing with or shortly before the foliage; pedicels thinly pubescent or glabrous, $\frac{1}{8}$–$\frac{1}{2}$ in. long. *Receptacle* reddish, wide cylindric, narrowed in the middle after the fruit has set, 1–2 lin. long, glabrous or pubescent at the base. *Sepals* ovate, ciliate, under 1 lin. long. *Petals* pale rose or white, obovate, about $2\frac{1}{2}$ lin. long. *Fruit* ovoid, rather pointed, 3–5 lin. long, coloured as in our figure when about to fall; in wild plants sometimes red, sometimes yellow.

Fig. 1, base of a leaf with stipules; 2, flower; 3, longitudinal section of receptacle, showing 2 ovaries-anomalous; 4 and 5, stamens:—*all enlarged.*

8361.

M. S. del, J.N.Fitch lith.

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TAB. 8361.

MASDEVALLIA PACHYURA.

Ecuador.

ORCHIDACEAE. Tribe EPIDENDREAE.

MASDEVALLIA, *Ruiz et Pav.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 492.

Masdevallia pachyura, *Reichb. f. in Gard. Chron.* 1874, vol. ii. p. 322, et *Linnaea*, vol. xli. p. 12; *Woolw. Monogr. Masdev.* [p. 19, t. 4]; *Gard. Chron.* 1897, vol. xxii. p. 255, fig. 77; inter species sectionis *Amandae* floribus **majusculis rubro-punctatis distincta.**

Herba epiphytica, caespitosa, nana, epseudobulbosa. *Folia* conferta, petiolata, spathulato-oblonga, coriacea, apice subacuta et recurva; limbus basi attenuatus, 7–10 cm. longus, 1·5–2·5 cm. latus; petioli 5–7 cm. longi, basi vaginis membranaceis obtecti. *Scapi* erecti graciles, 15–22 cm. longi; racemi laxi, 5–7-flori; bracteae ovatae, subobtusae, membranaceae, 5–7 mm. longae. *Pedicelli* circiter 4 mm. longi. *Flores* majusculi, straminei, rubro-punctati, sepalorum lateralium caudae et nervae medianae flavae. *Sepala* basi in tubum brevem connata; posticum late elliptico-ovatum, cucullatum, breviter caudatum, circiter 2 cm. longum; lateralia patentia anguste ovata, breviter caudata, caudis recurvis. *Petala* oblonga, apice tridentata, circiter 7 mm. longa. *Labellum* pandurato-oblongum, obtusum, fere ad apicem tricarinatum. *Columna* clavata, 5 mm. longa.—*M. tridens*, Reichb. f. in Otia Bot. Hamb. p. 13.—R. A. ROLFE.

The plant of *Masdevallia pachyura* here figured was purchased for Kew at an auction sale in 1908. The species is a member of the small group *Amandae*, with racemose flowers and with the tube formed by the sepals distinctly constricted below. It is a native of Ecuador, where it was discovered by Roezl. It was first described by Reichenbach in 1874. Its introduction to cultivation we owe to the late Mr. Consul Lehmann, who sent plants to Mr. J. O'Brien, with whom it flowered for the first time in 1897. Lehmann has noted that the range of this species is somewhat restricted, it being confined to the western slopes of Chimborazo, about one degree south of the Equator, at elevations of from 5,600 to 8,300 feet above sea level. It is abundant around Cayandelet and above Pallatanga. Usually found growing on trees in very damp thick woods, it also occurs occasionally on walls of rock. As a rule it

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flowers in the wild state in March and April; sometimes it flowers again in November; the mean temperature of its habitat ranges from 59° to 64° Fahrenheit. The plant grows well and flowers freely under the treatment suitable for most Masdevallias; a cool moist greenhouse, shade from direct sunshine and a compost of sphagnum and peat. The specimen from which our illustration has been derived flowered in January.

DESCRIPTION.—*Herb*, epiphytic, dwarf and tufted, without pseudobulbs. *Leaves* clustered, spathulate-oblong, coriaceous, recurved and rather acute at the tip, narrowed to the base, 3–4 in. long, $\frac{2}{3}$–1 in. wide; petiole 2–3 in. long, with membranous sheaths at the base. *Scapes* slender, erect, 6–9 in. long; racemes lax, 5–7-flowered; bracts ovate, somewhat blunt, membranous, $\frac{1}{4}$–$\frac{1}{3}$ in. long; pedicels about $\frac{1}{6}$ in. long. *Flowers* rather large, straw-coloured with reddish dots, the tails and midribs of the lateral sepals yellow. *Sepals* united at the base in a short tube, the upper wide elliptic-ovate, hooded, shortly tailed, about $\frac{3}{4}$ in. long; lateral pair spreading, narrow ovate, shortly tailed, the tails recurved. *Petals* oblong, 3-toothed at the tip, about $\frac{1}{3}$ in. long. *Lip* pandurate-oblong, obtuse, 3-keeled almost to the tip. *Column* clavate, under $\frac{1}{4}$ in. long.

Fig. 1, flower; 2, petals and column; 3, column and lip; 4, anther-cap; 5, pollinia:—*all enlarged.*

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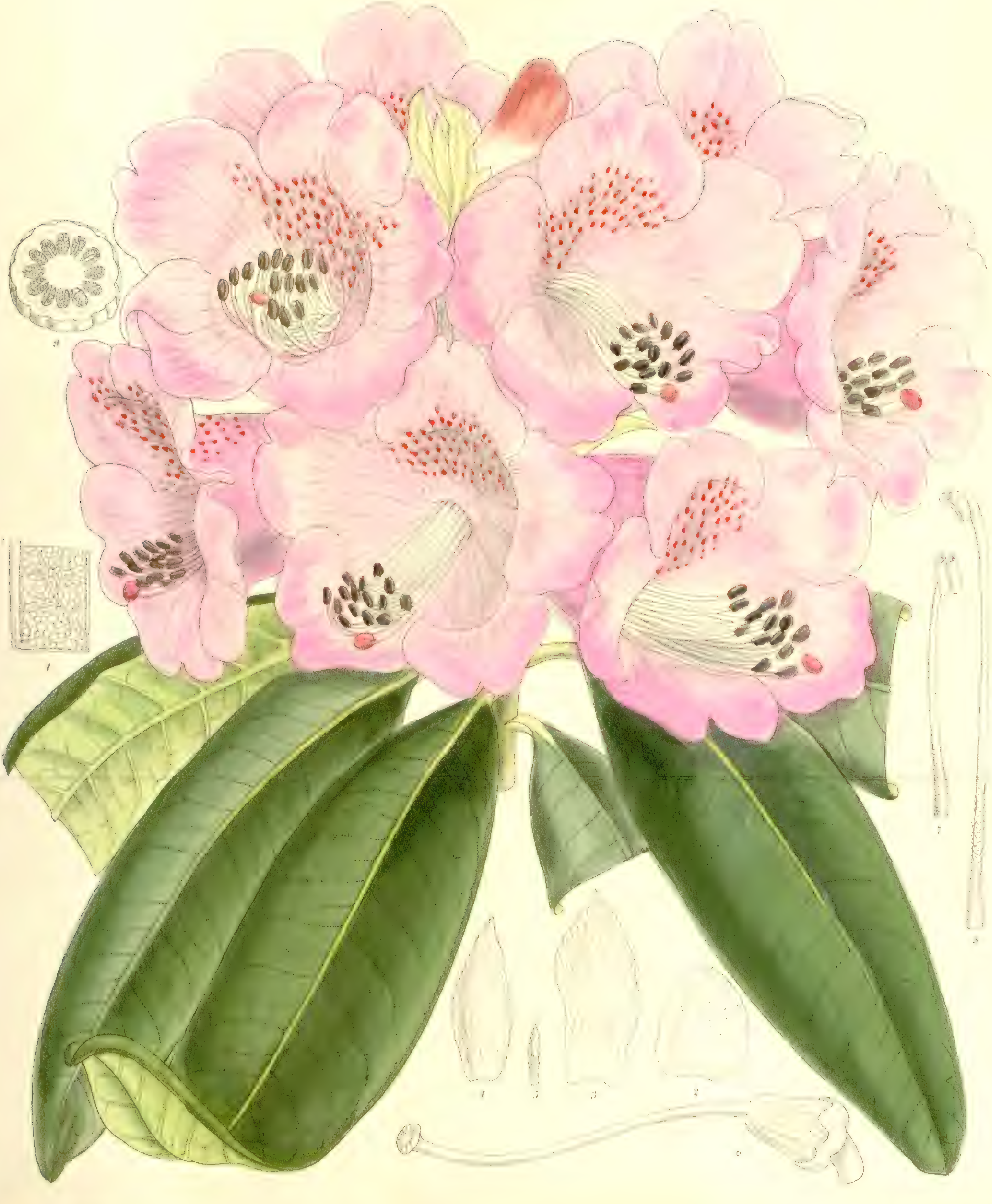

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TAB. 8362.

RHODODENDRON SUTCHUENENSE.

Central China.

ERICACEAE. Tribe RHODOREAE.

RHODODENDRON, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 599.

Rhododendron (Eurhododendron) **sutchuenense,** *Franch. in Journ. de Bot.* vol. ix. p. 392; *Hemsl. et E. H. Wils. in Kew Bull.* 1910, p. 112; inter species hujus sectionis foliis floribusque haud lepidotis *R. Fortunei* affinis, a qua fere omnino glabra et foliis oblanceolato-oblongis differt.

Frutex 2·5–3 m. altus, haud lepidotus et fere omnino glaber, ramis floriferis rectis crassis interdum primum plus minusve tomentosis. *Folia* numerosa, ad apices ramorum conferta, longe petiolata, bene evoluta, crassa, coriacea, glabra vel interdum subtus secus costam diu tomentosa; lamina oblanceolato-oblonga, 8–25 cm. longa, sed saepius circiter 15 cm. longa, deorsum attenuata, apice saepius rotundata, obtusa, superiora minora interdum acuta, supra saturate viridia, infra pallida; costa crassissima, subtus elevata; venae primariae laterales numerosae, sat conspicuae; venae ultimae subtiliter reticulatae; petiolus validus, interdum fere suberosus, 2–4 cm. longus. *Flores* dense corymboso-racemosi, 7–8 cm. diametro, gemmarum squamis variis intus sericeis; corymbi subsessiles, usque ad 20 cm. diametro; pedicelli 1·5–2 cm. longi. *Calyx* parvus, fere obsoletus, obscure lobatus, glaber. *Corolla* late campanulata, 5-lobata, lobis latis rotundatis emarginatis, rosea, intus postice maculis sanguineis ornata, basin versus puberula. *Stamina* 13–15, declinata, quam corolla breviora; filamenta filiformia, infra medium pubescentia; antherae fere nigrae. *Ovarium* 12-loculare, glabrum, nudum; stylus glaber, declinatus, stamina vix superans, stigmate sanguineo. *Capsula* lignosa, oblonga, circiter 2·5 cm. longa, stylo lignescente coronata.—W. BOTTING HEMSLEY.

This handsome Rhododendron is one of the fruits of the first journey in China made by Mr. E. H. Wilson on behalf of Messrs. J. Veitch & Sons, and is the first of the large-leaved, large-flowered, new Chinese species to blossom in cultivation. Several of the smaller species of Rhododendron, which cover considerable patches of open country on the higher mountain slopes, as *Calluna* does in this country, have already been figured in this work. The large and broad-leaved species, of which *R. sutchuenense* is an example, occur as a rule, Mr. Wilson informs us, in partial shade and in association with other trees. Among these larged-leaved species the one here figured has the unusual interest of flowering while it is of small size, and

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the fine truss shown in our plate was borne by a plant, in the Coombe Wood Nursery, which was less than 2 feet in height. The flowers open early in March, so that they run considerable risk of damage by frost. It will therefore be advisable to select for this species, which otherwise is hardy, a position shaded from the early morning sun. In other respects its treatment should be that given to most Rhododendrons. This species was originally described from specimens collected in Szechuan. All those in the herbarium at Kew come, however, from Western Hupeh.

DESCRIPTION.—*Shrub*, 8–10 ft. high, free from scales and nearly glabrous, flowering twigs straight, thick, occasionally more or less tomentose at first. *Leaves* numerous, clustered at the ends of the twigs, long-petioled, thick and leathery when full grown, glabrous or sometimes tomentose on the midrib beneath; oblanceolate-oblong, from 3–10, but usually about 6 in. long, narrowed to the base, usually rounded at the tip, the uppermost smaller and occasionally acute, deep green above, pale beneath; midrib very stout, prominent beneath; lateral main veins numerous and rather prominent; reticulation fine; petiole stout, occasionally almost corky, $\frac{3}{4}$–$1\frac{1}{2}$ in. long. *Flowers* densely corymbose, about 3 in. across, bud scales variable, silky; corymbs almost sessile, up to 8 in. wide; pedicels $\frac{1}{2}$–$\frac{3}{4}$ in. long. *Calyx* small or almost obsolete, faintly lobed, glabrous. *Corolla* wide campanulate, with 5 broad rounded emarginate lobes, rose-coloured and marked behind on the inside with darker spots, puberulous towards the base. *Stamens* 13–15, declinate, shorter than the corolla; filaments filiform, hairy below the middle; anthers almost black. *Ovary* 12-locular, glabrous, naked; style glabrous, declinate, hardly longer than the stamens; stigma bright red. *Capsule* woody, oblong, about 1 in. long, tipped by the hardened style.

Fig. 1, portion of under-surface of a leaf; 2–5, bracts of the inflorescence; 6, calyx and pistil; 7 and 8, stamens; 9, transverse section of ovary:—*all enlarged.*

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Vincent Brooks, Day & Son Ltd imp.

Tab. 8363.

PRIMULA Maximowiczii.

Northern China.

Primulaceae. Tribe Primuleae.

Primula, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 681.

Primula Maximowiczii, *Regel in Act. Hort. Petrop.* vol. iii. (1874), p. 139; *Gard. Chron.* 1910, vol. xlvii. p. 221, fig. 96; species ab affini *P. tangutica*, Duthie, calycis lobis brevioribus, corollae coccineae lobis brevioribus facile distinguenda.

Herba perennis, efarinosa, calycis lobis exceptis glabra. *Folia* omnia radicalia, anguste elliptica vel oblongo-elliptica, apice obtusa vel subacuta, basi in petiolum membranaceo-alatum attenuata, 4–15 cm. longa, 2–4·7 cm. lata, supra viridia subtus pallidiora, nervis lateralibus utrinque numerosis supra conspicuis subtus prominulis, margine crenulato-denticulata. *Scapus* robustus, teres, erectus, folia multoties superans, 20–30 cm. altus, umbellam solitariam multifloram vel umbellas plures superpositas gerens. *Pedicelli* graciles, 1·5–4 cm. longi, primo recti, demum curvati. *Calycis* viridis tubus ad 6 mm. longus, 3–3·5 mm. diametro, lobi acuti vel subacuti ad 3 mm. longi, margine ciliolati. *Corollae* coccineae tubus cylindricus superne leviter ampliatus, 1·3–1·6 cm. longus, 2–3 mm. diametro, ore annulo subpentagono instructus, limbus 1·5 cm. diametro, lobi reflexi oblongi, exsiccati atro-purpurei, 7–7·5 mm. longi, 2·5–3 mm. lati. *Antherae* parvae; filamenta brevia basem versus dilatata. *Ovarium* globosum; stylus calycis tubum paulo superans, apice depressus.—*P. oreocharis*, Hance in Journ. Bot. vol. xiii. (1875) p. 133. *P. Maximowiczii*, var. β *Dielsiana*, Pax in Engl. Pflanzenr. vol. iv. Primulaceae, p. 107.—W. G. Craib.

The *Primula* here figured has been, since its independent and almost simultaneous description by Regel and Hance in 1874 and 1875 respectively, an object of desire and a subject for debate. The original specimens showed that *P. Maximowiczii* must prove a welcome addition to horticulture. The wish of more than five and thirty years' standing has at last been fulfilled. The original specimens, collected by Moellendorf, Bretschneider, Hancock and Potanin, all came from the province of Chihli in Northern China, from the mountains in the neighbourhood of Peking. The plants now, thanks to the efforts of Messrs. J. Veitch & Sons, established in this country come from the same province, but from a locality considerably further to the

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north; they were obtained by Mr. W. Purdom in the mountains of Northern Wei-chang, at about 9000 feet above the sea. The species has also been recorded from Shansi by Giraldi. The doubt connected with *P. Maximowiczii* has had regard to the colour of the corolla. This, in all dried specimens, is purple, and 'purple' is the colour attributed to the plant both by Regel and by Pax. Yet Hancock found that his specimens, when fresh, had the corolla 'intense crimson,' and Potanin, an equally reliable observer, found one plant with 'red,' another with 'yellow' corollas. Nor are our doubts even now at an end. Our figure was prepared on 23rd March, 1910, from a plant sent to Kew from the Coombe Wood Nursery for identification; the colour, somewhat remarkable and unusual in a *Primula*, accords with the experience of Hancock. Yet, on the previous day, the Gardeners' Chronicle states (*l.c.* p. 221), a Certificate was awarded by the Royal Horticultural Society to a plant of the same species shown by Messrs. Veitch which had a 'dark, clear purple' corolla.

The nearest ally of *P. Maximowiczii* is a *Primula* from Western Kansu, which Maximowicz considered to be no more than a variety of our plant. Five years ago, however, Duthie and Pax independently and simultaneously accorded specific rank to this variety, as *P. tangutica.* Their species, which appears always to have a 'dark purple' corolla, has been figured at t. 8043 of this work. It differs mainly from the plant now described in having longer calyx-teeth, narrower corolla-lobes, and in the upper portion of the scape being distinctly puberulous. *P. Maximowiczii* proves to be perfectly hardy, and Messrs. Veitch find that it thrives best in a mixture of peat, loam and sand, in equal proportions, and grows most satisfactorily when given a shady position.

DESCRIPTION.—*Herb,* perennial, green, all parts except the ciliate calyx-lobes glabrous. *Leaves* all radical, narrow elliptic or oblong-elliptic, obtuse or subacute, narrowed below into a membranous winged petiole, crenulate-toothed, $1\frac{3}{4}$–6 in. long, $\frac{3}{4}$–2 in. wide, bright green above, paler beneath, lateral nerves many on either side, conspicuous above and evident beneath. *Scape* stout, cylindric, erect, much longer than the leaves, 8–12 in. high, with a terminal, single or several-tiered umbel; pedicels slender, $\frac{3}{4}$–$1\frac{1}{2}$ in. long, at first straight, ultimately recurved. *Calyx* green; tube 3 lin. long, about $1\frac{1}{2}$ lin. wide; teeth acute or subacute, about half as long as tube, with ciliate margins. *Corolla* red; tube cylindric, slightly widened upwards, $\frac{1}{2}$–$\frac{2}{3}$ in. long, $1\frac{1}{2}$ lin. wide, with a faintly 5-angled ring at the throat, limb $\frac{2}{3}$ in. across; lobes oblong, reflexed, $\frac{1}{4}$–$\frac{1}{3}$ in. long, $1\frac{1}{2}$ lin. wide, always dark purple in dried specimens. *Stamens* with short filaments, dilated towards the base; anthers small. *Ovary* globose; style slightly longer than the calyx-tube; stigma depressed capitate.

Fig. 1, section of calyx, showing pistil; 2, section of corolla, showing stamens:—*both enlarged.*

8364.

[illegible]

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TAB. 8364.

MECONOPSIS SIMPLICIFOLIA.

Himalaya.

PAPAVERACEAE. Tribe EUPAPAVEREAE.

MECONOPSIS, *Vig.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 52; *Prantl & Kündig in Engl. & Prantl, Nat. Pflanzenf.* vol. iii. pars 2, p. 141.

Meconopsis (§ Polychaetia) **simplicifolia**, *Walp. Rep.* vol. i. p. 110; *Hook. f. Ill. Him. Pl.* t. 8; *Fl. des Serres*, vol. xiii. t. 1324; *Hook. f. et Thoms. Fl. Ind.* p. 252 et *Fl. Brit. Ind.* vol. i. p. 118; *Prain, Ann. Bot.* vol. xx. p. 354; species *P. quintuplinerviae*, Regel, proxima, petalis coeruleis haud purpureis semper ultra 4 statim distincta.

Herba monocarpica, acaulis. *Folia* radicalia, caespitosa, pilis barbellatis laxe hirsuta, ovato-lanceolata, apice acuta vel subobtusa, margine integra vel remote dentata, basi sensim in petiolum distinctum attenuata, 10–20 cm. longa, 2–2·5 cm. lata, supra viridia, subtus pallidiora. *Flores* speciosi, magni, in scapis simplicibus pilosis 1-floris 30–40 cm. altis singuli, suberecti; alabastra nutantia. *Sepala* 2, oblongo-ovata, 3 cm. longa, extra hirsuta. *Petala* 6–8, spiraliter disposita, ovata, coerulea, 5 cm. longa, 3 cm. lata. *Stamina* ∞, pluri-seriata, filamentis angustis glabris discretis. *Ovarium* e carpellis 6–8 compositum, parce setosum, cylindricum, 2·5–3 cm. longum; stylus distinctus, glaber, crassus, 6–7 mm. longus; stigma depresso-dilatatum lobis radiantibus divaricatis; placentae intrusae; ovula plurima. *Capsula* lineari-clavata, 2·5–5 cm. longa, parce setosa; semina reticulata.—*Papaver simplicifolium*, D. Don, Prodr. Fl. Nep. p. 196. *Stylophorum simplicifolium*, Spreng. Syst. vol. iv. cur. post. p. 203.—D. PRAIN.

The handsome Poppywort here figured has long been a familiar plant in European alpine gardens. It is a native of the high Himalayan Alps at from 12–16,000 feet above sea-level and extends along the southern aspect of the range from Central Nepal eastward to Bhutan; it also crosses some, at least, of the passes leading northward to the Tibetan table-land, and has been found at similar elevations in the provinces of Khamba and Phari in South Tibet. In the section *Polychaetia*, characterised by the barbellate, in place of smooth, hairs which constitute the indumentum, *M. simplicifolia* is a member of the group *Grandes*, all the species of which have divaricately radiating stigmatic lobes. In two of these, *M. integrifolia*, Franch., figured at t. 8027, and *M. punicea*, Maxim., figured at t. 8119 of this work, the stigma is sessile; in the remaining species of the group there is, as in our plant, a distinct style. Among these *M. simplicifolia* most resembles *M. quintuplinervia*, Regel, a native of North-western China, which, however, differs in

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having but 4 petals, which are purple in colour. In habit and general appearance our plant also agrees with *M. pseudo-integrifolia*, Prain, a yellow-flowered Tibetan species; as regards its fruit it agrees with the Himalayan *M. grandis*, Prain. First met with by Wallich in Nepal in 1819, it was originally introduced to horticulture by Sir J. D. Hooker, from Sikkim, in 1848. It has been repeatedly reintroduced since, and the plant used in preparing our illustration was raised from seed received in 1908 from the Royal Botanic Garden, Calcutta. The seedlings were kept in a cold frame until the spring of 1910, when they were planted in a shaded moist position in the Rock Garden, where they flowered in May, but failed to produce seeds. Less vigorous in habit than some of the other species, *M. simplicifolia* requires greater attention than most, especially when the young seedlings, after they have produced two or three true leaves, are pricked out into boxes or small pots. So far as is known, *M. simplicifolia* is strictly monocarpic and usually flowers in the second year. Occasionally, however, at Edinburgh, where the climatic conditions enable this species to thrive more satisfactorily than it does further south, a few plants, Professor Bayley Balfour informs us, defer flowering till their third season.

DESCRIPTION.—*Herb*, monocarpic, usually biennial; stemless. *Leaves* all radical, tufted, sparingly hirsute, ovate-lanceolate, acute or somewhat obtuse, entire or distinctly toothed, gradually narrowed downwards into a distinct petiole, 4–8 in. long, $\frac{3}{4}$–1 in. wide, green above, paler beneath. *Flowers* showy, large; scapes 1-flowered, hirsute, 1–1$\frac{1}{2}$ ft., in fruit sometimes 2 ft., in height; buds nodding; open flowers almost erect. *Sepals* 2, oblong-ovate, about 1 in. long, hirsute externally. *Petals* 6–8, ovate, clear blue, 2 in. long, about 1 in. wide. *Stamens* many, several-seriate; filaments narrow, glabrous, free. *Ovary* composed of 6–8 carpels, cylindric, about 1 in. long, sparingly setose; style distinct, glabrous, thick, about $\frac{1}{4}$ in. long; stigma depressed, enlarged laterally, with radiating divaricate lobes; placentas intruded; ovules numerous. *Capsule* linear-clavate, 1–2 in. long, sparingly setose; seeds reticulate.

Fig. 1, stamen; 2, pistil:—*both enlarged.*

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I.S. del. J.N.Fitch lith.

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Tab. 8365.

CLEMATIS MONTANA, var. WILSONII.

China.

Ranunculaceae. Tribe Clematideae.

Clematis, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 3.

Clematis montana, *Buch.* ex *DC. Syst.* vol. i. 1818, p. 164, var. **Wilsonii,** *Sprague*; affinis var. *rubenti*, Hort., a qua sepalis angustioribus albis recedit.

Frutex scandens caule striato puberulo. *Folia* opposita, trifoliolata; petioli 4–10 cm. longi, minute sparse puberuli; petioluli foliolorum terminalium 1·5–2·5 cm. longi, ei foliolorum lateralium duplo vel triplo breviores; foliola ovata, acutissime acuminata, basi subtruncata vel subcordata (ea ramulorum floriferorum elliptica utrinque angustata) 4–8 cm. longa, 2·5–4 cm. lata, grosse serrata dentibus apiculatis, tenuiter herbacea, supra glabra, subtus in nervis puberula; nervi supra impressi, subtus prominentes. *Flores* in ramulis abbreviatis foliatis basi perulatis fasciculati. *Pedunculi* uniflori, graciles, 15–20 cm. longi, puberuli. *Sepala* 4, petaloidea, alba, induplicato-valvata, obovato-oblonga, ex apice retuso mucronata, 2–2·5 cm. longa, 1–1·2 cm. lata, intus glabra, extra medio glabriuscula, utroque latere dense pubescentia. *Petala* nulla. *Stamina* numerosa, exteriora 1·5 cm. longa, interiora 1 cm. longa; filamenta linearia, glabra; antherae lineares vel oblongo-lineares, 2·5–3 mm. longae, lateraliter dehiscentes. *Pistilla* numerosa; ovarium compressum, glabrum; stylus superne glaber, ceterum sericeo-villosus.—T. A. Sprague.

Clematis montana, Buch., is a somewhat polymorphic species widely spread in the Himalaya and in the mountains of Western and Central China. Ten distinct varieties have been recognised by Brühl as occurring in Sikkim, Tibet and Yunnan, though some of these depart so markedly from typical *C. montana* that they might perhaps be just as well treated as distinct species. The variety which forms the subject of our plate is a native of China; our figure has been made from a plant which flowered in July, 1909, in the Coombe Wood Nursery of Messrs. J. Veitch & Sons, where it is known as the "autumn flowering *C. montana*"; it was obtained for them in Central China by their collector, Mr. E. H. Wilson, whose name it bears. It appears to be most nearly allied to a variety of *C. montana* from Hupeh with pink flowers. But in addition to having white in place of pink sepals, var. *Wilsonii* differs from the variety *rubens* of our gardens in having the sepals more oblong, with a more sharply marked glabrescent

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median band outside, and in having less deeply cut leaflets. It is not, however, at all certain that the Chinese var. *rubens*, Hort., is the same as the original var. *rubens*, Kuntze, which is based on a statement by Hooker and Thomson that in the Himalaya the flowers of *C. montana* are sometimes pinkish. Like other members of the genus, *C. montana*, var. *Wilsonii* thrives in a rich loamy soil which is all the better if of a calcareous nature. At Kew, where no lime is actually present in the soil it is found very advantageous to many species of *Clematis* if slaked lime be added. Like the other varieties of *C. montana*, our plant produces its flowers from the nodes of the previous season's growth; it should therefore only be pruned after the flowers are past, and the shortening back of the shoots during winter, so useful in the case of most species of *Clematis*, must here be avoided. Propagation can be readily effected by means of cuttings. The garden value of this variety is enhanced by the fact that it flowers at least two months later than the typical *C. montana* and about six weeks later than var. *rubens*.

DESCRIPTION.—*Shrub*, climbing; stems striate puberulous. *Leaves* opposite, 3-foliolate; petioles 1½–4 in. long, finely sparingly puberulous; stalks of the end leaflet ⅔–1 in. long, twice or thrice as long as those of the lateral leaflets; leaflets ovate narrowly acuminate, truncate or subcordate, those of the flowering shoots elliptic and narrowed to the base, 1½–3 in. long, 1–1½ in. wide, wide serrate with apiculate teeth; thin, glabrous above, puberulous on the nerves beneath; nerves sunk above, raised beneath. *Flowers* fascicled on short leafy branchlets clothed with bud-scales at the base. *Peduncles* 1-flowered, slender, 6–8 in. long, puberulous. *Sepals* 4, petaloid, white, induplicate-valvate, obovate-oblong, retuse but mucronulate at the tip, ¾–1 in. long, about ½ in. wide, glabrous within, almost so along a central band outside, but densely pubescent elsewhere. *Petals* 0. *Stamens* many, the outer ⅔ in. long, the inner under ½ in. long; filaments linear, glabrous; anthers linear or narrow oblong, 1–1½ lin. long; dehiscence lateral. *Carpels* many; ovary compressed, glabrous; style glabrous above, silky hairy elsewhere.

Fig. 1, stamen; 2, carpel:—*both enlarged.*

M. S. del. J. N. Fitch lith.

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TAB. 8366.

CIRRHOPETALUM LONGISSIMUM.

Siam.

ORCHIDACEAE. Tribe EPIDENDREAE.

CIRRHOPETALUM, *Thou.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 504.

Cirrhopetalum longissimum, *Ridl. in Journ. Linn. Soc.* vol. xxxii. p. 280; *Gard. Chron.* 1909, vol. xlvi. p. 364; *Rolfe in Orch. Rev.* 1909, p. 373; *Journ. Roy. Hort. Soc.* n. s. vol. xxxv. *Proc.* pp. 271, 273, fig. 160; a speciebus omnibus adhuc notis sepalis lateralibus longissimus facile distinguendum.

Herba epiphytica, repens. *Rhizoma* crassiusculum; internodi 3–7 cm. longi. *Pseudobulbi* ovoidei, 2·5–4 cm. longi, basi vaginis ovatis membranaceis obtecti, monophylli. *Folia* subsessilia, oblonga, coriacea, apice recurva et subacuta, basi attenuata, 9–15 cm. longa, 2·5–4·5 cm. lata. *Scapi* arcuati vel penduli, circiter 20 cm. longi, vaginis 2–3 acuminatis obtecti. *Flores* umbellati, 4–7, breviter pedicellati, albiduli, roseo-striati. *Bracteae* oblongo-lanceolatae, acuminatae, 1–1·5 cm. longae. *Pedicelli* circiter 1·5 cm. longi. *Sepalum* posticum lanceolatum vel oblongo-lanceolatum, ciliatum, 1·5–1·8 cm. longum, incurvum, concavum, venis rubris 5 percursum; sepala lateralia alte connata, linearia, longissime caudata, 20–30 cm. longa, rubro-striata; caudis filiformibus. *Petala* falcata, oblonga vel oblongo-lanceolata, subacuta, ciliata, 8–10 mm. longa. *Labellum* recurvum, ovato-oblongum, subacutum, carnosum, medio canaliculatum, circiter 8 mm. longum. *Columna* oblonga, circiter 8 mm. longa; stelidia falcato-incurva, filiformia, acuta; anthera hispidula.—R. A. ROLFE.

The remarkable *Cirrhopetalum* which forms the subject of our plate is a native of Siam, where it was found, near Panga, by Mr. Curtis, with whom it flowered in the Botanic Garden at Penang in October, 1893. It was first described, some three years later, by Mr. H. N. Ridley, Director of the Singapore Botanic Garden. A plant of the species was received at Kew from the Malay Peninsula in 1894. It would appear to be shy of flowering, for it has not yet done so at Kew, though a plant in the collection at the Royal Botanic Garden, Glasnevin, did so in July, 1903, and another in that of Sir Trevor Lawrence, at Burford, flowered in November, 1909. The figure of the inflorescence here depicted was prepared from Sir Trevor Lawrence's specimen sent for identification to Kew; that of the leaves, pseudobulbs and rhizome has been taken from the plant in the collection at Kew which agrees in every detail with the Burford plant. The species thrives well under the conditions suitable for other tropical species of the genus; the circumstances which determine the formation of flowering spikes, however, remain obscure. When these spikes do form, the plant becomes a striking object, owing to the remarkable length of the lateral sepals, which in the wild state and in flowers developed in the open air in the Malay Peninsula are stated by Mr. Ridley to be upwards of a foot in length, and readily distinguish it from every hitherto described species.

DESCRIPTION.—*Herb*, epiphytic; rhizome creeping, rather stout; internodes 1¼–2½ in. long; pseudobulbs ovoid, 1–1½ in. long, clothed at the base with ovate membranous sheaths, each bearing a single leaf. *Leaves* subsessile, oblong, leathery, recurved and subacute at the tip, narrowed to the base, 3½–6 in. long, 1–1¾ in. wide. *Scapes* curved or pendulous, about 8 in. long, beset with 2–3 acuminate sheaths. *Flowers* in umbels of 4–7, shortly pedicelled, whitish with rose-coloured streaks, bracts oblong-lanceolate, acuminate, 5–7 lin. long, about as long as the pedicels. *Sepals:* posterior lanceolate or oblong-lanceolate, ciliate, ⅔–¾ in. long, incurved, concave, marked with 5 red longitudinal veins; lateral pair long connate, linear, 8–12 in. long, with distinct pink longitudinal streaks, and ending in very long slender tails. *Petals* falcate, oblong or oblong-lanceolate, somewhat acute, ciliate, 4–5 lin. long. *Lip* recurved, ovate-oblong, subacute, fleshy, channelled along the centre, about 4 lin. long. *Column* oblong, about 4 lin. long; stelidia falcately incurved, filiform, acute; anther shortly hispid.

Fig. 1, a dorsal sepal; 2, a flower with sepals removed; 3, column and lip; 4, lip; 5, anther-cap; 6, pollinia:—*all enlarged.*

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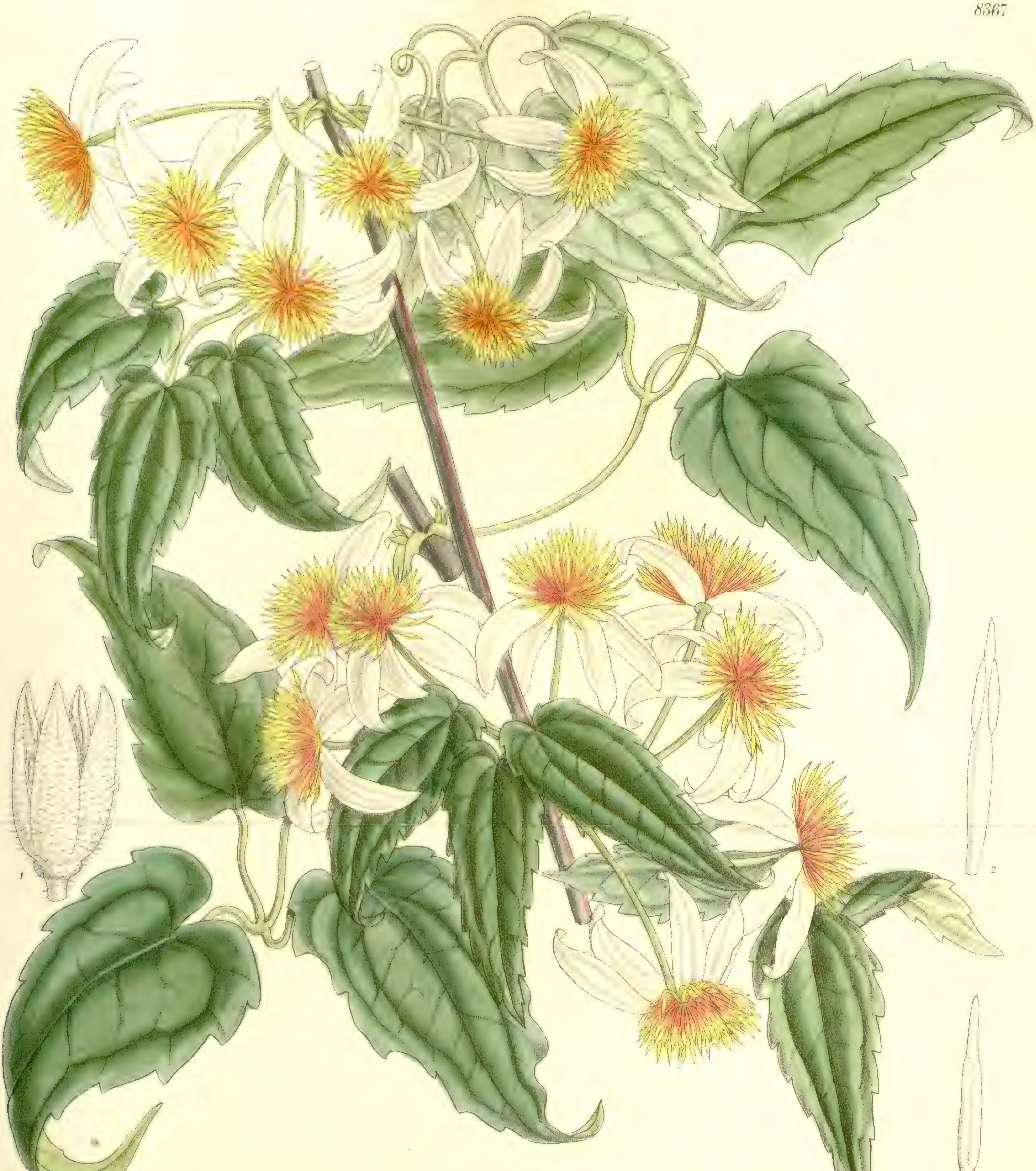

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TAB. 8367.

CLEMATIS ARISTATA, var. DENNISAE.

Australia.

RANUNCULACEAE. Tribe CLEMATIDEAE.

CLEMATIS, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 3.

Clematis aristata, *R. Br.*, var. **Dennisae,** *W. R. Guilf. in Ic.*; **varietas pulchra filamentis salmoneo-rubris distincta.**

Frutex dioicus, scandens, sempervirens, caule striato parcissime puberulo. *Folia* opposita, trifoliolata; petioli 4·5–7·5 cm. longi; petioluli 1–3·5 cm. longi; foliola ovato-lanceolata vel lanceolata, acute caudato-acuminata acumine recurvo, basi cordata vel truncata, 5–10 cm. longa, 1·8–4·5 cm. lata, grosse dentato-serrata, glabra, opaca, basi quinquenervia, nervis exterioribus patulis, intermediis versus apicem currentibus juxta medium folii cum nervis superioribus lateralibus patulis connexis. *Paniculae* axillares, pluriflorae; rhachis usque ad 2 cm. longa, breviter dense pilosa; bracteae late subulatae marginibus incurvis, 3·5–5 mm. longae; pedunculi decussati, uniflori, densiuscule pilosi, apice bibracteati, 3–10 mm. longi; pedicelli 3·5–5 cm. longi, pilosi. *Flores masculi: Sepala* 4, aestivatione valvata, alba, lanceolato-ligularia, apice obtusa, in basin leviter angustata, 2–2·5 cm. longa, 4·5–7 mm. lata, extra pubescentia, intus glabra. *Stamina* numerosa; filamenta salmoneo-rubra, linearia, extima circiter 7 mm. longa, intima circiter 2 mm. longa; antherae oblongae usque lineares, extimae 2·5 mm. longae appendice exclusa, intimae 4 mm. longae, connectivo apice ultra thecas in appendicem subulatam circiter 1·7 mm. longam producto. *Rudimenta pistillorum* nulla. *Flores feminei* et *achaenia* ignoti.—*C. Sanderi*, W. Wats. in Gard. Chron. 1907, vol. xli. p. 310.—T. A. SPRAGUE.

Clematis aristata, R. Br., to which the form here figured is referred, is a native of Australia. The species was originally based on specimens from New South Wales, but in the Flora Australiensis a somewhat comprehensive view was adopted by the late Mr. Bentham, who attributes to *C. aristata* a wide distribution, and assigns to it several varieties. It is now, however, generally believed that the variety *coriacea* of that work includes at least the typical *C. aristata* and *C. coriacea*, DC., that the variety *blanda* is the distinct Tasmanian *C. blanda*, Hook., and that the variety *occidentalis* is the equally distinct Western Australian *C. pubescens*, Hueg. Some authorities, on the other hand, have treated as distinct certain forms that are usually referred to typical *C. aristata*, and in the case of the subject

of our illustration, the plea for separate treatment is unusually strong. The plant here depicted differs markedly from true *C. aristata* in the longer coarsely dentate-serrate leaflets, and in this respect agrees more closely with certain specimens from New South Wales in the Kew herbarium which may be referable to *C. coriacea*, DC. These New South Wales specimens, however, which do not agree with typical *C. aristata*, differ also from our plant, which is a native of Victoria, in having considerably longer appendages to the anthers. Specimens of what we believe to be the female state of our plant were first collected by the late Baron von Mueller on Mount Disappointment and in the Delatite valley nearly sixty years ago; the notes attached to these specimens show that von Mueller originally considered the plant entitled to specific rank. More than half a century was to elapse before the plant attracted in Australia the notice that it deserves, for it was not till about 1904 that it was introduced to cultivation by Mrs. J. Dennis, of Murngal, who had met with it on the Healesville ranges in Evelyn. Mr. W. R. Guilfoyle, Director of the Melbourne Botanic Gardens, on receiving examples, marked his sense of the position of the form and of the merit of its discoverer by naming it in her honour. Under this name, already familiar in Australian gardens, Mr. Guilfoyle, early in 1907, forwarded living examples to Messrs. F. Sander & Sons, in whose nursery at St. Albans our plant flowered in May, 1907, for the first time in Europe. This introduction was noted at the time in the Gardeners' Chronicle; the writer of that note, while unaware of the history of the plant, independently formed the opinion at which Baron von Mueller had arrived in 1852. Later in the same year Messrs. Sander presented a living plant to the Kew collection. This plant, from which the material for our figure has been derived, has thriven well in a sunny greenhouse under the conditions suitable for *C. indivisa*, Willd., figured at t. 4398 of this work, which it resembles in habit and in being evergreen. It blossoms in May, and the flowers, which are fragrant, are striking on account of the salmon-red colour of their filaments. This character has not been ascribed to any of the forms hitherto referred to *C. aristata*, nor do the specimens of those at our disposal indicate its existence. Having regard, however, to the incertitude attending negative evidence it appears desirable, until further field observation has been made, to follow Mr. Guilfoyle in treating this striking plant as a well-marked variety of *C. aristata.*

DESCRIPTION.—*Shrub,* dioecious, evergreen, climbing; stem striate, sparingly puberulous. *Leaves* opposite, 3-foliolate; petioles 1¾–3 in. long; petiolules ½–1½ in. long; leaflets ovate-lanceolate or lanceolate, sharply caudate-acuminate with recurved tips, base cordate or truncate, 2–4 in. long, ¾–1¾ in. wide, coarsely serrately toothed, glabrous, dull, 5-nerved from the base, outer nerves spreading, intermediate extending towards the leaf tip, united from the middle onwards with the upper spreading lateral branches of the midrib. *Panicles* axillary, many-flowered; rachis under 1 in. long, shortly closely hairy; bracts wide subulate with incurved edges, about 2 lin. long; peduncles decussate 1-flowered, densely pilose, 2-bracteolate at the tip, 2–5 lin. long; pedicels 1¼–2 in. long, pilose. *Male flowers: Sepals* 4, valvate, white, lanceolate-ligulate, obtuse, base slightly narrowed, ¾–1 in. long, 2–4 lin. wide, pubescent externally, glabrous within. *Stamens* many; filaments salmon-red, the outer about ¼ in. long, three times as long as the inner; anthers oblong to linear, the outer, without the appendage, about 1 lin. long, half as long as the inner; connective produced beyond the anther cells in a subulate tip nearly 1 lin. long. *Rudimentary pistil* 0. *Female flowers* and *fruit* unknown.

Fig. 1, flower-bud; 2, an outer stamen; 3, an inner stamen:—*all enlarged.*

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TAB 8368.

PSEUDERANTHEMUM MALACCENSE.

Malay Peninsula.

ACANTHACEAE. Tribe JUSTICIEAE.

PSEUDERANTHEMUM, *Radlk.*; *Lindau in Engl. & Prantl, Nat. Pflanzenfam.* vol. iv. pars iii. B, p. 330.

Pseuderanthemum malaccense, *Lindau,* l.c.: species a *P. crenulato,* Radlk. (*Eranthemum crenulatum,* Wall. ex Lindl.), quacum olim confusa, corollis multo longioribus statim distinguenda, caeterum ramis pilis minutis rigidis e basi incrassata sursum curvatis subadpressis, floribus sub anthesi subaequaliter secundum racemi axem distributis, calycibus brevibus pedicellis aequilongis vel inferioribus sublongioribus cognoscenda.

Frutex 1–1·5 m. altus; rami teretes pilis minutis rigidis e basi incrassata sursum curvatis subadpressis scabriduli. *Folia* lanceolata vel elliptico-lanceolata, utrinque attenuata vel apice saepius acuminata, 8–12 cm. longa, 2–5 cm. lata, tenuia, tenuiter scabridula, in costa utrinque minute pilosula, nervis lateralibus utrinque circiter 7 obliquis prorsus curvatis; petiolus gracilis, 1–2 cm. longus. *Inflorescentia* simpliciter ramosa, 1–5 cm. longa, interdum basi ramulo (raro pluribus) aucta, omnibus partibus indumento ramulorum simili induta, floribus numerosis, multis eodem tempore apertis primo in verticillos paucifloros approximatos dispositis vel oppositis vel hinc-inde sparsis (inferioribus saepe rudimentariis), dispositione sub anthesi magis minusve obliterata ita ut ad summam racemum subaequalem continuum referat; bracteae lanceolatae vel lanceolato-subulatae, 1–2 mm. longae, patentes; bracteolae bracteis similes nisi pro ratione latiores, breviores; pedicelli 1–2 mm. longi, oblique erecti vel e basi patente adscendentes. *Calyx* peralte divisus, vix 2 mm. longus, segmentis subulatis. *Corolla* hypocrateriformis; tubus angustus, subrectus, 2·5–3·5 cm. longus, pallide violaceus, extra parce minute glandulosus; limbus pallide violaceus vel albido-violaceus, lobo antico intermedio rubro-punctato, 2 cm. vel paulo ultra diametiens, lobis anticis 3 a posticis 2 altius connatis divergentibus late oblongis, intermedio antico ad 6 mm. lato, medio pilis consperso. *Antherae* breviter ellipticae, filamentis aequilongae, 1 mm. longae, connectivo minute glanduloso. *Ovarium* glabrum, disco annulari cinctum; stylus inferne sparse pilosiusculus. *Capsula* ignota.—*Eranthemum crenulatum,* var. *angustifolium,* Nees in DC. Prodr. vol. xi. p. 454. *E. malaccense,* C. B. Clarke in Hook. f. Fl. Brit. Ind. vol iv. p. 498 *et* in King & Gamble, Mat. Fl. Mal. Pen. p. 888 (Journ. As. Soc. Beng. vol. lxxiv. pars ii. p. 678) partim. *E. graciliflorum,* Bedd. in Journ. Roy. Hort. Soc. xxxiv. p. 71 quoad syn. *E. malaccense*; an Nees.—O. STAPF.

The handsome Acanthad which forms the subject of our plate has been figured from a plant which flowered in the collection at Kew in May, 1910. This plant, which was sent by Mr. H. N. Ridley from the Singapore Botanic

APRIL, 1911.

Garden in 1908, was accompanied by the remark that it is the true *Eranthemum malaccense*, Clarke, a species which appears to be confined to the Malayan Peninsula, where it extends from Langkawi in Kedah southwards to Johor. The plant is, as Mr. Ridley indicates, *E. malaccense*; the identification is important because, in a valuable annotated list of cultivated *Acanthaceae* by Col. R. H. Beddome, published in the Journal of the Royal Horticultural Society in 1908, *E. malaccense*, Clarke, has been treated as identical with *E. graciliflorum*, Nees. Some doubt has arisen as to the precise limitation of *E. malaccense*, and more than one species has been included under that name, but, for reasons which have been discussed in a recent number of the Kew Bulletin (1911, p. 79), and need not be detailed here, Dr. Stapf has found himself unable to adopt the view that the true *E. malaccense*, here figured, is undoubtedly referable to *E. graciliflorum*. Our plant, however, is not a member of the tribe *Ruellieae*, and therefore is not an *Eranthemum*; it belongs to the tribe *Justicieae*, and is a member of the genus *Pseuderanthemum*, the species of which, owing to a misapprehension explained at t. 8239 of this work, are still at times supposed to be Eranthemums. On this account the name given to this species by Dr. Lindau must be adopted; another species, *P. seticalyx*, Stapf, from Tropical Africa, has already been figured at t. 8244 of this Magazine. *P. malaccense* grows freely in a stove and forms a bush about 3 feet in height. Like many tropical Acanthads it is most satisfactorily cultivated when raised annually from cuttings, and requires to be liberally treated as regards soil and moisture.

DESCRIPTION.—*Shrub*; 3–5 ft. high, branches terete, somewhat scabrid with small rigid upcurved somewhat adpressed hairs. *Leaves* lanceolate or elliptic-lanceolate, narrowed to base and tip or often acuminate, 3–5 in. long, ¾–2 in. wide, thin, slightly scabrid, finely hairy along the midrib above and below, lateral veins about 7 on each side, oblique, curving throughout; petiole slender, ⅓–¾ in. long. *Inflorescence* simply branched, ½–2 in. long, sometimes with one or more basal branches, scaberulous everywhere like the twigs, flowers numerous, many opening together, at first in few-flowered whorls or opposite or occasionally scattered, the very lowest often rudimentary, at length more or less drawn out above in a raceme; bracts lanceolate or lanceolate-subulate, about 1 lin. long, spreading; bracteoles like the bracts, but rather wider and shorter; pedicels about 1 lin. long, oblique and erect or ascending from a spreading base. *Calyx* deeply divided, barely 1 lin. long, lobes subulate. *Corolla* hypocrateriform; tube narrow, nearly straight, 1–1½ in. long, pale violet, finely sparingly glandular outside; limb pale violet or violet-white, with red specks on mid-lobe of lower lip, about ¾ in. across, lips spreading, their lobes wide oblong, the 2 upper more distinctly connate than the 3 lower, of which the median is ¼ in. wide, sparingly hairy in the centre. *Anthers* short elliptic, as long as their filaments, the connective somewhat glandular. *Ovary* glabrous, surrounded by the annular disk; style faintly hairy below. *Capsule* unknown.

Fig. 1, calyx and style; 2, corolla, laid open; 3 and 4, stamens; 5, ovary and disk:—*all enlarged.*

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TAB. 8369.

ELAEAGNUS ARGENTEA.

North America.

ELAEAGNACEAE.

ELAEAGNUS, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 204.

Elaeagnus argentea, *Pursh, Fl. Amer. Sept.* vol. i. p. 114; *Watson, Dendrol. Brit.* vol. ii. t. 161; *Britt. & Brown, Ill. Fl. Northern United St.* vol. ii. p. 467; affinis *E. angustifoliae,* Linn., sed foliis petiolis brevioribus, pedicellis brevioribus, calycis tubo multo angustiore et baccis minoribus argenteis facile distinguenda.

Frutex ad 4 m. altus, ramosissimus, cortice brunneo lepidoto. *Folia* alterna, petiolata, lanceolata vel elliptico-lanceolata, acuta vel obtusa, basi cuneata vel obtusa, utrinque nitide argenteo-lepidota, lamina 2–6·5 cm. longa, 0·7–3 cm. lata, petiolo 3–6 mm. longo. *Flores* axillares, fasciculati, hermaphroditi vel masculi, pedicellis 2–4 mm. longis. *Calyx* extra argenteo-lepidota, intus glabra; tubus 1 cm. longus parte infra constrictionem 3–3·5 mm. longa elliptica; limbus 4-lobus, luteus, lobis 3–4 mm. longis 2·5–3 mm. latis ovatis acutis. *Stamina* 4, ad faucem calycis inserta, erecta, filamentis vix 1 mm. longis glabris. *Ovarium* glabrum; stylus in flore hermaphrodito elongatus, ad faucem attingens, basi pubescens, in flore masculo rudimentarius, brevissimus. *Bacca* 1·5 cm. longa, 1 cm. crassa, ellipsoidea, argenteo-lepidota.—N. E. BROWN.

The genus *Elaeagnus*, which includes about twenty-five species, mostly natives of South-Eastern Asia, is represented in North America by the solitary species here figured, which extends from Utah to the Upper Missouri and thence eastward to Minnesota and Canada. Two other species, both natives of Japan, have already been figured in this work; *E. multiflora*, Thunb., at t. 7341, and *E. macrophylla*, Thunb., at t. 7638. Like the other species of the genus, *E. argentea* is characterised by the close lepidote indumentum to which it owes the popular name Silver Berry by which it is known in the United States and Canada, and among hardy shrubs whose leaves have this grey metallic lustre the present plant is perhaps the most striking. There are others of the same shade, but they mostly are of dull surface, and lack the peculiar metallic sheen characteristic of this species. It also flowers freely, and its clear yellow blossoms contrast admirably with the foliage. *E. argentea* is occasionally grown and sold in nurseries as *Shepherdia argentea*, but the true *S. argentea*, Nutt., known popularly in the United States as the Buffalo Berry, though similarly silvery lepidote, is at once distinguished from our plant by its opposite leaves. The plant from which our figure has been prepared has long been in cultivation at Kew, where it forms a desirable shrub and is quite hardy. It is readily propagated by means of suckers which are freely produced.

DESCRIPTION.—*Shrub*; reaching a height of 14 ft., freely branched; bark brown, lepidote. *Leaves* alternate, petioled, lanceolate or elliptic-lanceolate, acute or obtuse, base cuneate or rounded, lepidote and with a faint metallic sheen above, silvery lepidote beneath, $\frac{3}{4}$–$2\frac{1}{2}$ in. long, $\frac{1}{4}$–$1\frac{1}{4}$ in. wide; petiole 2–3 lin. long. *Flowers* axillary, fascicled, 2-sexual or male only; pedicels 1–2 lin. long. *Calyx* silvery lepidote outside, glabrous within; tube 5 lin. long, narrowed below the middle, the lower widened portion elliptic, $1\frac{1}{2}$–2 lin. long; limb 4-lobed, yellow, the lobes ovate, acute, about 2 lin. long, $1\frac{1}{2}$ lin. wide. *Stamens* 4, inserted in the calyx throat, filaments very short, glabrous. *Ovary* glabrous; style pubescent at the base, elongated and reaching the calyx throat in the 2-sexual flowers; ovary in male flowers rudimentary with a minute style. *Berry* 8 lin. long, 5 lin. across, ellipsoid, silvery lepidote.

Fig. 1, portion of a leaf, showing the scales on both surfaces; 2, scales; 3, a hermaphrodite flower in longitudinal section; 4, apex of style, with stigma; 5, male flower, in longitudinal section; 6, a pyrene:—*all enlarged.*

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TAB. 8370.

FELICIA PETIOLATA.

South Africa.

COMPOSITAE. Tribe ASTEROIDEAE.

FELICIA, *Cass.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 274.

Felicia petiolata, *N. E. Br. in Kew Bull.* 1906, p. 20, in obs.; *Gard. Chron.* 1907, vol. xlii. p. 81, fig. 34; affinis *F. Cymbalariae*, Schlechter (Aster Cymbalariae, *Ait.*) sed foliis alternis et floribus radii multo majoribus differt.

Suffrutex subprocumbens; rami subteretes, parce puberuli; ramuli juniores stricti, erecti, pilosi. *Folia* alterna, obovata vel lanceolata, apice obtusa vel subacuta, basi cuneata, 1–2·5 cm. longa, 0·5–1·5 cm. lata, grosse serrata, subchartacea, utrinque pilosa, obscure pellucido-punctata, nervis lateralibus inconspicuis; petioli usque ad 5 mm. longi, pilosi. *Pedunculi* solitarii, terminales, parce foliati, usque ad 7 cm. longi. *Involucri bracteae* oblongo-lanceolatae, acutissimae, 4–5 mm. longae, 1·5–2 mm. latae, extra parce pilosae, margine paulo membranaceo. *Flores* radii rosei, circiter 12; corollae tubus cylindricus, 3·5 mm. longus, parce puberulus; limbus oblongo-ellipticus, apice bifidus, 1 cm. longus, 3 mm. latus, 5-nervis. *Achaenia* compressa, ambitu oblongo-obovata, 3 mm. longa, 1·5 mm. lata, breviter pubescentia. *Pappus* uniseriatus, barbellatus, 3 mm. longus. *Flores* disci flavi; corollae tubus 5 mm. longus, glaber, lobis ovatis obtusis. *Achaenia* subteretia, 2 mm. longa, puberula. *Pappus* ut in floribus radii. —*Aster petiolatus*, Harv. Thes. t. 154, et in Harv. et Sond. Fl. Cap. vol. iii. p. 80.—J. HUTCHINSON.

The pleasing Composite here figured was originally met with by Mr. T. Cooper in 1861, in Basutoland and in the Albert Division of Cape Colony, where it was found hanging over precipitous rocks. It appears never to have been collected again until 1903, when Mr. Dieterlin sent from Basutoland to the Botanic Garden, Montpellier, a herbarium specimen and some ripe achenes, thus effecting its introduction to European gardens. Several species of the genus *Felicia* have already been figured in this work: *F. tenella*, DC., as an *Aster*, at t. 33; *F. reflexa*, DC., also as an *Aster*, at t. 884; and *F. echinata*, DC., at t. 8049. Like the last-mentioned species, *F. petiolata* is a shrub of loose straggling habit, and therefore under cultivation it requires to be cut back frequently during the season of growth. Its nearest ally in the genus appears to be *F. Cymbalariae*, Schlechter (Aster Cymbalariae, *Ait.*), but it is readily distinguished, among other characters, by the alternate leaves and the much larger ray-florets. The plant has to be grown under greenhouse conditions and its cultivation is unattended by difficulty. In the Kew collection it flowers about midsummer; the plant from which our figure has been prepared flowered early in June, 1910, in the collection of Mr. W. E. Ledger, Wimbledon, by whom it was sent for identification.

DESCRIPTION.—*Undershrub*; branches more or less prostrate, rounded, sparingly puberulous; young twigs strict, erect, hairy. *Leaves* alternate, obovate or lanceolate, obtuse or somewhat pointed, cuneate at the base, $\frac{1}{3}$–1 in. long, $\frac{1}{4}$–$\frac{3}{4}$ in. wide, coarsely toothed, rather papery, hairy and faintly gland-dotted on both sides, lateral nerves indistinct; petiole $\frac{1}{4}$ in. long or less. *Peduncles* solitary, terminal, sparingly leafy, sometimes 3 in. long. *Bracts* of the involucre oblong-lanceolate, very acute, 2 lin. long, 1 lin. wide, sparingly hairy externally, margin somewhat membranous. *Ray-florets* about 12, rose-coloured; corolla-tube cylindric, under 2 lin. long, sparingly puberulous; limb oblong-elliptic, with bifid tip, 5 lin. long, 1$\frac{1}{2}$ lin. wide, 5-nerved. *Fruit* compound, oblong-obovate, 1$\frac{1}{2}$ lin. long, $\frac{3}{4}$ lin. wide, shortly pubescent; pappus-hairs 1-seriate, barbellate, 1$\frac{1}{2}$ lin. long. *Disk-florets* yellow; corolla-tube 2$\frac{1}{2}$ lin. long, glabrous; lobes ovate, obtuse. *Fruit* subterete, 1 lin. long, puberulous; pappus-hairs as in fruits of the ray.

Fig. 1, bract of the involucre; 2, ray-floret; 3, disk-floret; 4, pappus-hair; 5, anthers; 6, style-arms:—*all enlarged.*

8371

M.S. del. J.N. Fitch lith.

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TAB. 8371.

DENDROBIUM MURICATUM, var. MUNIFICUM.

New Caledonia.

ORCHIDACEAE. Tribe EPIDENDREAE.

DENDROBIUM, *Swartz*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 498.

Dendrobium muricatum, *Finet*, var. **munificum,** *Finet in Bull. Soc. Bot. France*, vol. l. (1903), p. 378, t. 14, fig. 7–18; *Rolfe in Orch. Rev.* 1909, p. 347; a typo labello spathulato, lobis lateralibus quadratis, isthmo cuneato-oblongo, lobo medio ovato-orbiculari crenulato-undulato concavo differt.

Herba epiphytica. *Rhizoma* validum, radices muricatas emittens. *Pseudobulbi* ovoideo-oblongi, 4–7 cm. longi, 2–3 cm. lati, vaginis membranaceis striatis imbricatis demum deciduis vel ad filamenta hispida reductis obtecti, cicatricibus 5–7-annulati, apice mono- vel diphylli. *Folia* elliptico-oblonga, coriacea, apice recurva et subacuta, basi in petiolum brevem attenuata, 8–22 cm. longa, 3–7 cm. lata. *Scapi* subterminales, arcuati, 20–40 cm. longi; basi vaginis paucis brevibus obtecti; racemi multiflori; bracteae triangulares, acutae, 2 mm. longae; pedicelli 1·5 cm. longi. *Sepala* patentia, oblonga, apiculata, circiter 2 cm. longa, viridia, brunneo-maculata. *Petala* patentia, oblonga, subobtusa, circiter 2 cm. longa, viridia, minute brunneo-punctata. *Labellum* articulatum, submobile, trilobum, fere 2 cm. longum; lobi laterales erecti, quadrati, truncati, subconcavi, 3 mm. longi, virides, margine purpureo-striati; isthmus cuneato-oblongus, 8 mm. longus, rubro-purpureus; lobus medius ovato-orbicularis, concavus, 8–10 mm. latus, margine crenulato-undulatus, aureus; discus prope basin biauriculatus. *Columna* lata, 4 mm. longa. *Mentum* subobsoletum.—R. A. ROLFE.

The very remarkable *Dendrobium* which forms the subject of this plate is a native of New Caledonia first described by Mr. Finet in 1903. In reviewing its position in the genus Mr. Finet has suggested that it may belong to the section *Dendrocoryne* and be an ally of *D. speciosum*, Smith, figured at t. 3074 of this work. The difficulties in the way of accepting this suggestion are considerable, and Mr. Rolfe, who points out that the vegetative organs, as shown in the plant here figured, have probably not yet reached their full development, is inclined to treat it rather as an aberrant member of the section *Sarcopodium.* The form regarded as typical *D. muricatum* differs markedly from the variety here depicted in the shape of the lip, especially in the widely hastate-cordate anterior lobe. The muricate roots characteristic of the species are remarkable and recall those of *D. mutabile*, Lindl. The plant from which our figure has been prepared flowered in the Royal Botanic Garden,

Glasnevin, in August, 1909. Mr. Moore, to whom we are indebted for the material, informs us that this plant, consisting then of two fair-sized pseudobulbs, was presented by Dr. R. Schlechter to the Irish national collection in September, 1906, and was stated to have come direct from New Caledonia. In 1907 it made but weak growth, in 1908 a slightly stronger growth, and in 1909 a vigorous fresh growth, about two-thirds the size of the imported pseudobulb, was perfected and produced the inflorescence shown in our figure. The hard, firm nature of the pseudobulbs and the thick coriaceous leaves indicate that it is a light-loving species. At Glasnevin, Mr. Moore has grown it in a pan suspended near the glass in the intermediate orchid-house where it gets abundant light and a fair supply of air. In this position, potted in a mixture of Osmunda fibre and fibrous peat, with some broken crocks and a little fresh sphagnum worked through, the plant thrives well.

DESCRIPTION.—*Herb*; epiphytic; rootstock stout, giving out muricate roots. *Pseudobulbs* ovoid-oblong, $1\frac{3}{4}$–$2\frac{1}{2}$ in. long, about 1 in. thick, clothed with membranous striate imbricate sheaths which ultimately are reduced to hispid shreds or disappear, leaving the pseudobulb marked by 5–7 annular scars. *Leaves* 1–2, terminal, elliptic-oblong, leathery, recurved and somewhat pointed at the tip, narrowed downwards into a short petiole, 3–9 in. long, $1\frac{1}{4}$–$2\frac{1}{2}$ in. wide. *Scapes* almost terminal, curved, 8–16 in. long, clothed below with a few short sheaths; racemes many-flowered; bracts triangular, acute, 1 lin. long; pedicels $\frac{2}{3}$ in. long. *Sepals* spreading, oblong, apiculate, about $\frac{3}{4}$ in. long, greenish and with brown blotches. *Petals* spreading, oblong, rather blunt, as long as the sepals, greenish with smaller brown spots. *Lip* jointed, slightly mobile, 3-lobed, nearly as long as the petals; lateral lobes erect, quadrate, truncate, somewhat concave, $1\frac{1}{2}$ lin. long, greenish with a purple streaked margin; isthmus cuneate-oblong, $\frac{1}{3}$ in. long, reddish-purple; central lobe ovate-orbicular, concave, 4–5 lin. long, margin crenulate-undulate, yellow; the disk 2-auricled near the base. *Column* broad, 2 lin. long, with hardly any mentum.

Fig. 1, lip; 2 and 3, column; 4, anther cap; 5, pollinia:—*all enlarged.*

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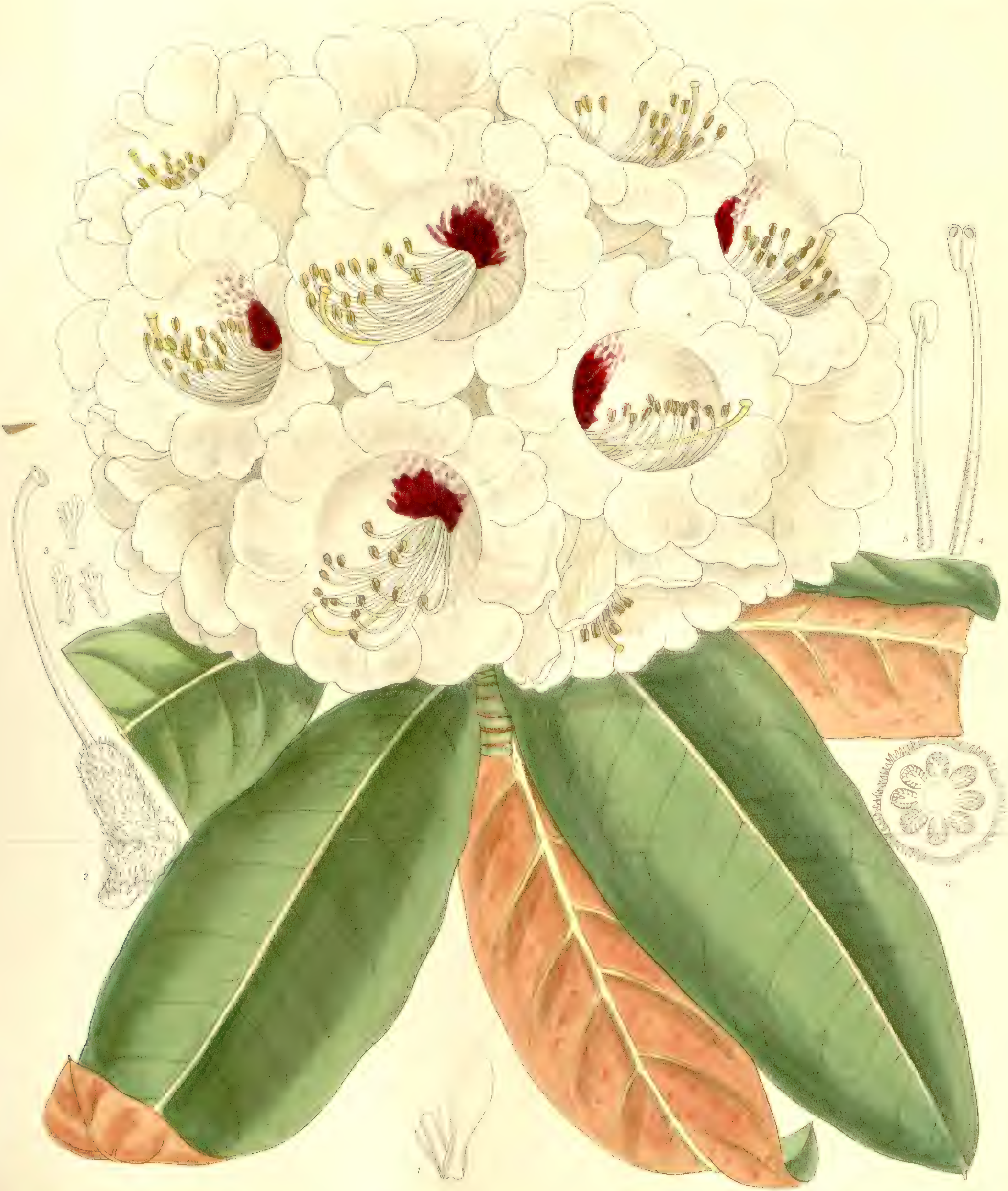

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Tab. 8372.

RHODODENDRON LACTEUM.

Western China.

Ericaceae. Tribe Rhodoreae.

Rhododendron, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 599.

Rhododendron (Eurhododendron) **lacteum,** *Franch. in Bull. Soc. Bot. France,* vol. xxxiii. (1886), p. 231; *Hemsl. in Journ. Linn. Soc.* vol. xxvi. p. 26; species ex affinitate *R. Falconeri,* Hook. f., a quo differt foliis minoribus basi haud cordatis haud subtus conspicue grosse reticulatis, floribus majoribus et staminibus longioribus subexsertis; etiam foliis iis *R. Wightii,* Hook. f., simillimis sed floribus omnino diversis.

Arbor gregaria (*Delavay*), ramis floriferis crassis rigidis primum tomentosis. *Folia* in apicibus ramorum conferta, petiolata, coriacea, rigida; lamina oblongo-lanceolata, 15–20 cm. longa, 6–8 cm. lata, apice rotundata cum mucronulo, basi rotundata vel subcuneata, supra glabra, subtus densissime ferrugineo-tomentosa, costa crassa subtus elevata, venis primariis utrinque circiter 15 subtus sat conspicuis; petiolus crassissimus 2–3 cm. longus. *Corymbi* densi, subsessiles, multiflori, 14–18 cm. diametro; bracteae (exteriores non visae) obovato-oblongae, 2–3 cm. longae, rotundatae, pubescentes; pedicelli tomentosi, 2·5–3·5 cm. longi. *Flores* albi, intus in parte superiore tubi sanguinei, 6–7 cm. diametro, ad pedicellum oblique affixum. *Calyx* brevissimus, obscure lobatus. *Corolla* late campanulata, saepius 8-lobata, lobis brevibus rotundatis emarginatis late imbricatis recurvis. *Stamina* plerumque 16, declinata, inaequalia, longiora corollam aequantia, filamenta filiformia, infra medium puberula; antherae brunneo-purpureae. *Ovarium* oblongum, fere 1 cm. longum, densissime furfuraceo-tomentosum, 8-loculare, loculis multiovulatis; stylus glaber, stamina paullo superans. *Capsula* non visa.—W. Botting Hemsley.

The handsome Rhododendron here figured is one of a number of species raised in the Jardin des Plantes from seeds sent to Paris by the late Abbé Delavay. A set of these plants was presented to Kew in 1888, and the first to flower was *R. scabrifolium*, Franch., figured at t. 7159 of this work in 1891, followed by *R. racemosum*, Franch., figured at t. 7301 in 1893, and by *R. irroratum*, Franch., given at t. 7361 in 1894. These three are comparatively small shrubs which mature early, and it was not till 1904 that another member of the set, *R. Delavayi*, Franch., similar in habit to the well-known *R. arboreum*, Sm.,

May, 1911.

flowered for the first time in the garden of the late Mr. Acton, at Kilmacurragh, Wicklow; it was figured in 1907 at t. 8137 of this work. The species here described has postponed flowering for even a longer period, for it was not till 1908 that it first blossomed in the garden of Mr. P. L. de Vilmorin, at Verrières-le-Buisson. It has now to be recorded as having flowered in this country in the garden of Mr. F. D. Godman, at South Lodge, Horsham, where a collection of Rhododendrons has been, for many years, cultivated with exceptional skill and success. From this plant, a large and hardy bush, which blossomed for the first time in April, 1910, was obtained the material from which our illustration has been prepared. It may be mentioned that there is an equally fine example of *R. lacteum* at Kilmacurragh, of the same age as the South Lodge plant, but that there is as yet no record of its having flowered. In this feature of not flowering until it is about 20 years old *R. lacteum* resembles its nearest ally, *R. Falconeri*, Hook. f., figured at t. 4924 of this Magazine, and there is every indication that it may grow to as large a size as *R. Falconeri* and *R. grande*, Wight, attain in the warmer parts of Britain, and that it may prove fully as hardy as these species. It should be noted that another species of Rhododendron, from Borneo, first described in 1894, has been given the same name. For this latter plant, *R. lacteum*, Stapf, in Trans. Linn. Soc. Bot. ser. 2, vol. iv. p. 197, t. 15, Mr. Hemsley proposes to substitute the name *R. Stapfianum*, Hemsl.

DESCRIPTION.—*Tree*, gregarious, flowering shoots stout, firm, at first hairy. *Leaves* clustered at the ends of the shoots, petioled, coriaceous, firm; blade oblong-lanceolate, 6–8 in. long, $2\frac{1}{4}$–3 in. wide, rounded and mucronulate at the apex, base rounded or somewhat cuneate, glabrous above, densely rusty-tomentose beneath, midrib stout, raised beneath, main veins about 15 on each side, fairly conspicuous; petiole very stout, about 1 in. long. *Corymbs* dense, subsessile, many-flowered, 6–7 in. across; bracts (the outer not seen) obovate-oblong, about 1 in. long, rounded, pubescent; pedicels tomentose, 1–$1\frac{1}{2}$ in. long. *Flowers* white, with a blood-red patch in the upper portion of the tube within, 2–$2\frac{1}{2}$ in. wide, obliquely attached to the pedicel. *Calyx* very short, obscurely lobed. *Corolla* wide campanulate, usually 8-lobed; lobes short, rounded, emarginate, distinctly imbricate, recurved. *Stamens* generally 16, declinate, unequal, the longest as long as the corolla tube; filaments filiform, puberulous below the middle; anthers purplish-brown. *Ovary* oblong, about $\frac{2}{5}$ in. long, densely scurfy-tomentose, 8-celled; cells many-ovuled; style glabrous, rather longer than the stamens. *Capsule* unknown.

Fig. 1, bracts; 2, upper portion of pedicel, calyx and pistil; 3, hairs; 4 and 5, stamens; 6, cross-section of ovary:—*all enlarged.*

[illegible] J.N.Fitch lith.

[illegible]

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TAB. 8373.

DEINANTHE CAERULEA.

China.

SAXIFRAGACEAE. Tribe HYDRANGEAE.

DEINANTHE, *Maxim.*; *Engl. & Prantl, Natürl. Pflanzenf.* vol. iii. pars ii. A, p. 74.

Deinanthe caerulea, *Stapf*: species ab altera generis hujus, *D. bifida*, Maxim., foliis supra pilis simplicibus uniformibus adpresse strigosis, infra praeter costam hinc inde pilis perpaucis conspersam glabris, **inflorescentia nec umbellatim congesta nec involucrata, floribus amoene caeruleis, capsulae parte supera alte conica distincta.**

Herba perennis, circiter 30-50 cm. alta. *Rhizoma* crassum, horizontale, nodosum, copiose fimbrilligerum. *Caulis* solitarius, e rhizomate terminalis ima basi et intervallis 5-10 cm. remotis squamis oppositis vel suboppositis scariosis late oblongis obtusis 5-10 mm. longis emarcescentibus instructus, glaber vel raro superne parce pilosulus. *Folia* plerumque 4 in apice caulis congesta, raro paulo dissita, opposita, magnitudine valde variabilia, petiolata; lamina ovata vel late elliptica apice saltem foliis majoribus saepe 2-fida lobis latis acutis vel acuminatis, basi rotundata vel cuneata, circumcirca grosse acute serrata, 10-25 cm. longa lobis si obviis circiter 5 cm. longis, 6-16 cm. lata, tenuia, supra laxe adpresse strigosa, pilis simplicibus, infra glabra nisi hinc inde pilis perpaucis costae insidentibus, nervis obliquis utrinque 7-9, venis transversis laxis; petiolus 1·5-10 cm. longus, glaber. *Panicula* terminalis, pedunculo 5-15 cm. longo suffulta, glabra, ramis plerumque 3-4 nisi imis duobus approximatis dissitis, bractea foliacea lanceolata serrata ad 2·5 cm. longa suffultis, 2·5-6 cm. longis glabris cymas 3-1-floras gerentibus. *Flores steriles* perpauci, pedicello gracili ad 3 cm. longo suffulti, 3-4-sepala, sepalis caerulescentibus rotundatis demum ad 14 mm. diametro persistentibus. *Flores fertiles* nutantes, speciosi, pedicello validiore ad 1·5 cm. longo suffulti. *Receptaculum* late breviter turbinatum, glabrum. *Sepala* 5, ovato-rotundata, obtusa, 4-5 mm. alta, matura persistentia et paulo aucta, glabra, cum receptaculo caerulescentia vel rubescentia. *Petala* 6-8, rotundata, concava, 10-14 mm. diametro, amoene caerulea. *Stamina* numerosissima filamentis caeruleis antheris caerulescentibus. *Styli* in columnam 5-6 mm. longam connata; stigmata brevia, conniventia. *Capsula* nutans, parte infera subglobosa ad 5 mm. alta et columna stylari coronata.—*D. bifida*, **Oliver in Hook. Ic. Pl. t. 1884; nec Maxim.—O. STAPF.**

The genus *Deinanthe* was based by Maximowicz in 1867 on a plant which grows in shady woods in Southern Japan. It has been figured in the Somoku Zusetz under the name Guin bai sô, and according to Franchet and Savatier may occasionally be met with in Japanese gardens. The Japanese species *D. bifida*, Maxim, does not extend beyond Japan, but the genus is represented in China by another which is

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here figured. This Chinese species, when first sent to Europe by Mr. A. Henry, who discovered it at Hingshan in Hupeh, was identified from his specimens with the Japanese plant. They are indeed closely allied, but now that living plants are known it is evident that they are very distinct. The introduction of *D. caerulea* to cultivation we owe to Mr. E. H. Wilson, who rediscovered the plant at Nant'o in Hupeh, where it grows in wet places on cliffs, when collecting on behalf of Professor Sargent of the Arnold Arboretum. From some of the seeds then obtained plants were raised by Mr. H. J. Elwes in his garden at Colesborne, Cheltenham, where the species flowered for the first time in this country in August, 1909. One of the Colesborne plants, presented by Mr. Elwes to Mr. Dimsdale, of Ravenshill, Lechlade, flowered there in May, 1910, and provided the material from which our figure has been made. Material from another and much more robust plant, which flowered at Colesborne in August, 1910, was subsequently communicated by Mr. Elwes, who informs us the plant evidently prefers a very shady and moist situation, specimens put out under a north wall growing much more vigorously than those kept in pots. At Colesborne it has all the appearance of being a hardy plant. Mr. Elwes has directed our attention to the fashion in which the corolla separates from the receptacle when the flower is only two or three days old. In a note on the specimens obtained by him at Nant'o Mr. Wilson states that the flowers are white to purple; apparently only blue flowers have as yet been produced in cultivated plants. In the Japanese *D. bifida*, the petals appear always to be creamy-white or pure white with yellow stamens.

DESCRIPTION.—*Herb*, perennial, 1–1½ ft. high. *Rootstock* stout, horizontal, nodose, with many fibrous roots. *Stem* solitary, rising from the tip of the rootstock, with opposite or nearly opposite pairs of scarious, oblong, blunt bracts, ¼ in. long, at the base and at the nodes. *Leaves* generally 4, clustered at the top of the stem; blade ovate or wide elliptic, 2-fid at the tip, at least in the larger leaves, rounded or cuneate at the base, coarsely, sharply toothed, 4–10 in. long, 2¼–6 in. wide, the lobes when present about 2 in. long, membranous, sparingly adpressed strigose above with simple hairs, beneath glabrous except for a few hairs on the midrib; nerves 7–9 on each side, oblique; petiole $\frac{3}{4}$–4 in. long, glabrous. *Panicle* terminal, with a glabrous peduncle 2–6 in. long, and usually 3–4 glabrous branches, the two lower approximate, the others scattered, 1–2$\frac{1}{4}$ in. long, each in the axil of a leafy bract 1 in. long, and each supporting a 3–1-flowered cyme. *Sterile flowers* very few, on slender pedicels over 1 in. long, with 3–4 bluish rounded persistent sepals, ultimately over $\frac{1}{2}$ in. wide. *Fertile flowers* showy, nodding, on stouter pedicels $\frac{3}{4}$ in. long. *Receptacle* shortly wide turbinate, glabrous. *Sepals* 5, ovate-rotund, obtuse, 2–3 lin. long, persistent and slightly enlarged when mature, glabrous and bluish or reddish like the receptacle. *Petals* 6–8, bright blue, rounded, concave, 5–7 lin. wide. *Stamens* very many, with blue filaments and bluish anthers. *Styles* united in a column 2$\frac{1}{2}$–3 lin. long; stigmas short, connivent. *Capsule* nodding, subglobose below, 2$\frac{1}{2}$ lin. long, tipped by the columnar style.

Figs. 1-3, stamens; 4, stigmas; 5, section of ovary:—*all enlarged.*

M.S. del. J.N.Fitch lith.

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TAB. 8374.

ONCIDIUM SANDERAE.

Peru.

ORCHIDACEAE. Tribe VANDEAE.

ONCIDIUM, *Swartz*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 562.

Oncidium Sanderae, *Rolfe in Gard. Chron.* 1910, vol. xlviii. p. 67; *Orch. Rev.* 1910, pp. 248, 351; affinis *O. Papilioni*, Lindl., sed petalis labelloque magnopere crispo-undulatis et columnae alis glanduloso-pectinatis differt.

Herba; epiphytica. *Pseudobulbi* ovato-oblongi, subcompressi, 4–6 cm. longi, 3–4 cm. lati, monophylli. *Folia* subsessilia, coriacea, oblonga, subobtusa, brunneo-reticulata, 30–45 cm. longa, 5–8 cm. lata. *Scapi* suberecti vel arcuati, circiter 80 cm. longi, prope apicem subcompressi, pauciflori; bracteae oblongo-lanceolatae, acuminatae, 2 cm. longae; pedicelli 4–5 cm. longi. *Flores* speciosi, heterochronici. *Sepalum* posticum lineari-lanceolatum vel subspathulatum, acutum, circiter 8 cm. longum, rufo-brunneum; sepala lateralia oblonga, acuta, crispo-undulata, flava, brunneo-maculata, 6–7 cm. longa, 2 cm. lata. *Petala* lineari-lanceolata vel subspathulata, acuta, rufo-brunnea, circiter 7 cm. longa. *Labellum* trilobum; lobi laterales rotundati, crispo undulati, flavi, brunneo-maculati, 1 cm. lati; lobus intermedius unguiculatus, orbicularis, crispo-undulatus, circiter 3·5 cm. longus et latus; crista 5-loba, laevis. *Columna* 1 cm. longa, clavata, alis latis longe glanduloso-pectinatis.—R. A. ROLFE.

The remarkble *Oncidium* which forms the subject of our plate is a very interesting addition to the small group of species known as Butterfly Orchids hitherto believed to consist of but two species, viz.:—*O. Papilio*, Lindl., figured at t. 2795 of this work, which is a native of Trinidad and the adjacent coast of Venezuela, and *O. Kramerianum*, Reich. f., which occurs in Colombia and Ecuador. This new member of the section is a native of Peru, where it was obtained in the Moyobamba district by Mr. Forget, when collecting on behalf of Messrs. F. Sander & Sons, by whom it was imported in 1909. It flowered in the firm's nursery at St. Albans in August, 1910, and from their plant was received the material on which our figure is based. The three species of which this group is composed bear a close resemblance to each other in habit and in the handsome marbling of their leaves. It is interesting to note that although geographically more remote from *O. Papilio* than from *O. Kramerianum*, it is to *O. Papilio* that *O. Sanderae* is most closely allied, the upper portion of the inflorescence

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being somewhat flattened; *O. Kramerianum* is readily distinguished from both by its nodose inflorescence. *O. Sanderae* is, however, readily distinguished from *O. Papilio* by the much crisped lateral petals and lip, by the lighter coloration of the flowers, and by the numerous glandular appendages on the wings of the column. There is every indication that under cultivation *O. Sanderae* will thrive under the conditions as to heat, light and moisture that are suitable for its two near allies.

DESCRIPTION.—*Herb*; epiphytic. *Pseudobulbs* ovate-oblong, slightly compressed, $1\frac{1}{2}$–$2\frac{1}{4}$ in. long, $1\frac{1}{4}$–$1\frac{1}{2}$ in. wide, monophyllous. *Leaves* subsessile, coriaceous, oblong, somewhat obtuse, marbled with brown, 1–$1\frac{1}{2}$ ft. long, 2–3 in. wide. *Scapes* suberect or arcuate, about $2\frac{1}{2}$ ft. long, somewhat flattened towards the apex, few-flowered; bracts oblong-lanceolate, acuminate, $\frac{3}{4}$ in. long; pedicels $1\frac{3}{4}$–2 in. long. *Flowers* showy, opening one at a time. *Sepals*: upper linear-lanceolate or somewhat spathulate, acute, reddish-brown, about 3 in. long; lateral oblong, acute, crisped and wavy, yellow, spotted with brown, $2\frac{1}{4}$–$2\frac{3}{4}$ in. long, $1\frac{3}{4}$ in. wide. *Petals* linear-lanceolate or somewhat spathulate, acute, reddish-brown, about $2\frac{3}{4}$ in. long. *Lip* 3-lobed; lateral lobes rounded, crisped and wavy, yellow, spotted with brown, 5 lin. wide; mid-lobe clawed, orbicular, crisped and wavy, about $1\frac{1}{2}$ in. long and broad; crest 5-lobed, smooth. *Column* 5 lin. long, wings broad, distinctly glandular pectinate.

Fig. 1, column and base of lip; 2, anther-cap; 3, pollinarium; 4, sketch of an entire plant:—1–3 *enlarged*, 4 *much reduced.*

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[illegible]

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TAB. 8375.

LONICERA HENRYI.

China.

CAPRIFOLIACEAE. Tribe LONICEREAE.

LONICERA, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 5.

Lonicera Henryi, *Hemsl. in Journ. Linn. Soc.* vol. xxiii. (1888). p. 359; *Rehder in Rep. Missouri Bot. Gard.* vol. xiv. (1903) p. 148; affinis *L. Giraldii*, Rehder, e qua foliis haud pilosis facile distinguenda.

Frutex scandens; ramuli floriferi graciles, primo densius fulvo-pubescentes, demum fere glabri, cortice rubro-brunneo obtecti. *Folia* oblongo-lanceolata, apice acute acuminata, basi rotundata, truncata vel leviter cordata, 4·5–7 cm. longa, 1·3–2 cm. lata, chartacea, utrinque nisi secus costam glabra, margine ciliata, nervis lateralibus utrinque 8–10 intra marginem arcuatis pagina superiore leviter impressis inferiore prominulis, nervis transversis utrinque conspicuis. *Flores* sessiles, pedunculis bifloris 0·6–1·5 cm. longis ad apices ramulorum dispositi; bracteae subulatae, 7 mm. longae, setulosae; bracteolae parvae, ovato-oblongae, setuloso-ciliatae. *Receptacula* inter se libera, circiter 4 mm. alta, glabra. *Calycis* lobi lanceolati, obtusiusculi, fere 2 mm. longi, parce setuloso-ciliati. *Corollae* bilabiatae tubus circiter 1·3 cm. longus, extra glaber, intus pilosus; labium inferius e lobo singulo oblongo obtuso 1·5 cm. longo 0·5 cm. lato, superius e lobis 4 oblongis obtusis lateralibus basi margine interiore auriculatis constatum. *Stamina* brevissime exserta; filamenta parce pilosa; antherae oblongae, versatiles, 4 mm. longae. *Stylus* staminibus subaequialtus, parce pilosus, stigmate parvo capitato.—*Caprifolium Henryi*, O. Kuntze in Rev. Gen. Pl. vol. i. p. 274.—W. G. CRAIB.

The handsome Honeysuckle which forms the subject of our plate was introduced to cultivation by Mr. E. H. Wilson, who obtained it, when collecting on behalf of the Arnold Arboretum, in the province of Hupeh, where it had previously been met with by Mr. A. Henry, whose specimens formed the basis of its original description. It is, however, now known to occur also in the provinces of Szechuan and Yunnan. The species belongs to the section *Nintooa*, another species of which, *L. Giraldii*, Rehder, has already been figured at t. 8236 of this work. But though nearly allied and members of the same natural group, these two are readily distinguished, because the leaves of *L. Henryi* are glabrous except on the midrib, whereas those of *L. Giraldii* are pilose on both surfaces. *L. Henryi* has been in cultivation in this country at Kew, and in some

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other collections, for rather less than three years, and the first plant to flower in England is one at Nuneham in the garden of the Right Hon. L. Harcourt, to whom we are indebted for the material on which our illustration is based. A free-growing climber which promises to be hardy, *L. Henryi* is very easily propagated by means of cuttings made of half-ripened shoots taken about the end of July and placed in gentle bottom heat. The fact that the species is evergreen gives it a particular value in gardens, for in spite of the quite extraordinary number of hardy woody plants that have been introduced during the last decade, true evergreen climbers, as distinguished from the bushy shrubs made to do duty as such on garden walls, form still but a small group. This is largely due to the fact that evergreen climbers represent a type of vegetation more characteristic of tropical and subtropical than of the cool temperate zones; any accession to their numbers which is likely to thrive in our climate is therefore welcome.

DESCRIPTION.—*Shrub*; climbing; twigs slender, at first densely tawny-pubescent, at length almost glabrous; bark reddish-brown. *Leaves* oblong-lanceolate, acutely acuminate, base rounded, truncate or slightly cordate, $1\frac{3}{4}$–$2\frac{3}{4}$ in. long, $\frac{1}{2}$–$\frac{3}{4}$ in. wide, papery, glabrous on both surfaces except on the midrib, margin ciliate, lateral nerves 8–10 on each side, curved within the margin, impressed above, raised beneath, transverse veins visible on both surfaces. *Flowers* sessile, on 2-flowered peduncles $\frac{1}{4}$–$\frac{1}{2}$ in. long towards the ends of the branches; bracts subulate, over $\frac{1}{4}$ in. long, setulose; bracteoles small, ovate-oblong, setulose ciliate. *Receptacles* free, glabrous, about 2 lin. long. *Calyx* lobes lanceolate, somewhat obtuse, about 1 lin. long, sparingly setulose ciliate. *Corolla* 2-labiate, tube about $\frac{1}{2}$ in. long, glabrous without, pilose within; lower lip of one oblong obtuse lobe $\frac{2}{3}$ in. long, under $\frac{1}{4}$ in. wide, upper lip of 4 oblong obtuse lobes auriculate at the base on their inner margins. *Stamens* slightly exserted; filaments sparsely pilose; anthers oblong, versatile, 2 lin. long. *Style* about as long as the stamens, sparingly pilose; stigma small, capitate.

Fig. 1, a pair of flowers; 2 and 3, anthers; 4, upper portion of style, and stigma:—*all enlarged.*

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TAB. 8376.

VILLARESIA MUCRONATA.

Chile.

ICACINACEAE.

VILLARESIA, *Ruiz et Pav.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 353.

Villaresia mucronata, *Ruiz et Pav. Fl. Per.* vol. iii. p. 9, t. 231; *Gay, Fl. Chil.* vol. ii. p. 13; *Miers, Contrib. Bot.* vol. ii. p. 115, t. 67; *Engl. in Mart. Fl. Bras.* vol. xii. pars 2, p. 58; *Reiche, Fl. Chil.* vol. ii. p. 4; arbor habitu *Ilicis Aquifolii*, Linn., a qua foliis exstipulatis, subtus in axillis nervorum lateralium foveolatis necnon floribus distinguitur.

Arbor; ad 12 m. usque alta. *Ramuli* angulati, pubescentes, demum glabrescentes. *Folia* alterna, breviter petiolata, ovato-oblonga vel elliptico-oblonga, spinuloso-apiculata, basi obtusa vel rotundata, 5–8 cm. longa, 2·5–4·5 cm. lata, integra; ea arborum juvenium et surculorum majora, basi rotundata vel subcordata, margine undulata, valde spinuloso-dentata; coriacea, leviter convexa, supra nitida, subtus pallidiora, opaca, nervis prominentibus, foveolis pluribus singulis in axillis nervorum; petioli 4–7 mm. longi. *Thyrsi* terminales et in axillis foliorum superiorum singuli, 2·5–5 cm. longi, breviter pilosi, ramis patulis apice flores plures sessiles gerentibus. *Flores* pentameri. *Sepala* suberecta, imbricata, late elliptica vel suborbicularia, rotundata, 1·5–2 mm. longa, subaequilata, sparse ciliata, extra inferne pilosa. *Petala* cum filamentis inferne leviter connata, flavido-alba, elliptico-oblonga, apice rotundata, 6 mm. longa, 3 mm. lata, nervo medio intus valde incrassato prominente. *Filamenta* crasse subulata, 2–3 mm. longa; antherae late ellipticae, circiter 1·3 mm. longae, lateraliter dehiscentes. *Ovarium* abortu 1-loculare, ovoideum, circiter 1·5 mm. longum; stylus rectus, circiter 1 mm. longus; stigma obliquum, irregulariter lobatum; ovula 2, collateralia, pendula. *Drupa* ovoidea, 10–16 mm. longa, 8–19 mm. diametro (ex Reiche).—*V. pungens*, Miers, Contrib. Bot. vol. ii. p. 116, t. 68. *Citronella mucronata*, D. Don in Edinb. New Phil. Journ. vol. xiii. Oct. 1832, p. 243.—T. A. SPRAGUE.

The commemorative name *Villaresia* was originally bestowed by Ruiz and Pavon on a Peruvian plant collected at Pillao; a description of this genus was given by them in 1794 (Fl. Per. et Chil. Prodr. p. 35), and an account of *V. emarginata*, the species on which it was based, was supplied in 1798 (Syst. Veg. Fl. Per. et Chil. p. 64). The specimens of this Peruvian plant would appear to have been lost; possibly, as D. Don has suggested, in the shipwreck of the San Pedro de Alcantara. But from the descriptions which exist we learn that *V. emarginata* had a sessile stigma, an oblong acuminate 2-valved, 1-seeded capsule, and

an oblong tetragonal seed surrounded by a fleshy 2-lobed arillus. It has hitherto proved impossible to identify *V. emarginata* with any Peruvian plant collected since it was described, but it is obvious that it is a member of a genus very different from that to which the plant with a distinct style and a drupaceous fruit here figured belongs.

Specimens of our plant, *V. mucronata*, collected at Concepcion in Chile, were made the basis of a second and different *Villaresia* by the same authors in 1802 (Fl. Per. et Chil. vol. iii. p. 8), and although D. Don in 1832, realizing the situation, proposed to substitute for the Chilian *Villaresia* the name *Citronella*, his suggestion has not been adopted, subsequent authors preferring to apply the name proposed by Ruiz and Pavon to the Chilian *V. mucronata* and its allies. The material on which the figure of *V. mucronata* here given has been based was derived from a fine example in the garden of the Right Hon. the Earl of Ilchester at Abbotsbury, where it forms a tree between 50 and 60 ft. high, of pyramidal habit, but somewhat drawn up by other trees. It may be remarked that Miers stated that this species, which is the 'Naranjillo' of Aconcagua, had been described in the Viceroy's report to His Majesty the King of Spain as from 50 to 60 ft. high, but that he (Miers) had never seen or heard of its attaining any approach to that size. The species is only hardy in the south-west of England and in other parts of the United Kingdom with a similar climate. The upper portion of the tree has leaves which are devoid of spines, but on young trees and on suckers from old trees the leaves are spinescent-toothed, and the plant described as *V. pungens* by Miers is only this state of *V. mucronata*. The only mode of increase in this country is by means of cuttings, but these, unfortunately, do not root readily. The tree at Abbotsbury was introduced to the collection there about 1840 by the Hon. W. Fox-Strangways —whose name is commemorated in the genus *Stranvaesia*, one of the most ardent horticulturists of his day.

DESCRIPTION.—*Tree*; usually 40 ft. or less, rarely 50–60 ft. in height; twigs angular, at first pubescent, ultimately nearly glabrous. *Leaves* alternate, short petioled, ovate- or elliptic-oblong, in old trees with a spinulous tip and an obtuse or rounded base, 2–3 in. long, 1–1¾ in. wide, entire;

in young specimens and on suckers from the base larger, with a rounded or subcordate base and an undulate prominently spinulous-toothed margin; leathery, slightly convex, dark green, shining above, paler and dull beneath, nerves raised beneath, often with solitary pits at their angles; petiole 1½–2½ in. long. *Flowers* 5-merous, in solitary shortly pubescent thyrses, terminal or in the upper axils, 1–2 in. long; their branches spreading, with several sessile flowers at their tips. *Sepals* suberect, imbricate, wide elliptic or nearly orbicular, 1 lin. long or less, sparingly ciliate and pilose outside near the base. *Petals* yellowish-white, elliptic-oblong, rounded at the tip, 3 lin. long, 1½ lin. wide, the midrib thickened and prominent on the inner face. *Filaments* rather stout subulate, shortly adnate below to the petals, 1–1½ lin. long; anthers wide elliptic, opening laterally. *Ovary* by abortion 1-celled, ovoid, under 1 lin. long; style straight, ½ lin. long; stigma oblique, irregularly lobed; ovules 2, collateral, pendulous. *Drupe* ovoid, 5–8 lin. long, 4–9 lin. wide.

Fig. 1, portion of a leaf, undersurface, showing pits; 2, flower; 3, calyx and pistil; 4 and 5, stamens; 6, vertical section of ovary; 7, transverse section of ovary:—*all enlarged.*

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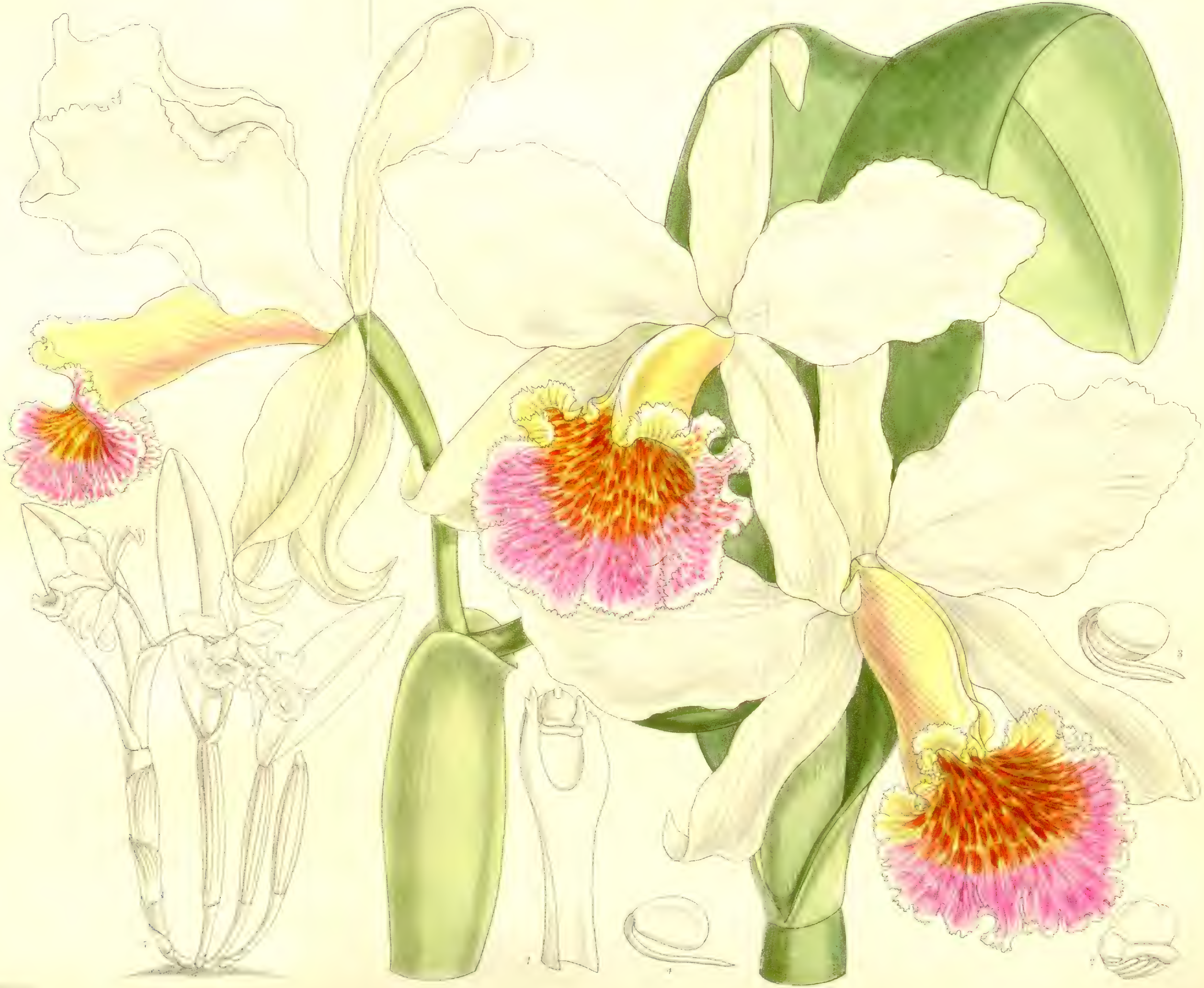

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TAB. 8377.

CATTLEYA REX.

Peru.

ORCHIDACEAE. Tribe EPIDENDREAE.

CATTLEYA, *Lindl.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 531.

Cattleya Rex, *O'Brien in Gard. Chron.* 1890, vol. viii. p. 684; 1891, vol. ix. pp. 272, 273, fig. 61; *Lindenia*, t. 265; *Rev. Hort.* 1894, p. 228, cum ic.; *Reichenbachia*, ser. 2, vol. ii. p. 55, t. 72; *Cogn. Dict. Ic. Orch., Cat.* t. 22; affinis *C. maximae*, Lindl., sed sepalis petalisque eburneis et labello colore valide differt.

Herba epiphytica. *Pseudobulbi* fusiformi-clavati, subcompressi, 15-30 cm. longi, monophylli. *Folia* oblonga, subobtusa, coriacea, 20–25 cm. longa, 5–6 cm. lata. *Spatha* lineari-oblonga, obtusa, 8–12 cm. longa. *Racemi* 12-20 cm. longi, 3-6-flori; bracteae triangulari-ovatae, acutae, 6–8 mm. longae. *Pedicelli* 6–7 cm. longi. *Flores* magni, speciosi. *Sepala* patentia, oblongo-lanceolata, subacuta, 7–8 cm. longa, apice recurva, eburnea. *Petala* subpatentia, elliptica vel rhomboideo-elliptica, obtusa, undulata, 7–8 cm. longa, eburnea, sepala triplo latiora. *Labellum* integrum, late oblongum, 7–8 cm. longum; lobi laterales columnam involventes, flavi; lobus intermedius expansus, orbicularis, valde crispo-undulatus, roseus, basi sanguineo-venosus, margine pallido; discus flavus purpureo-striatus. *Columna* clavata, arcuata, 3-3·5 cm. longa. *Pollinia* 4, compressa, appendicibus linearibus reflexis.—R. A. ROLFE.

This handsome *Cattleya* was originally discovered by Mr. Bungeroth on the western slopes of the Peruvian Andes, and was introduced to cultivation by Mr. L. Linden, L'Horticulture Internationale, Brussels, in which establishment it flowered for the first time in 1890; in the Kew collection it flowered for the first time in 1893. The plants of this earliest importation did not as a rule survive many years, and the species had become very rare in cultivation when Messrs. Sander & Sons, St. Albans, a year ago succeeded in obtaining a fresh consignment of plants from Mayobambo, in the Upper Amazon region. One of these plants, purchased for the Kew collection, flowered in a tropical house in July, 1910, and afforded the material from which our plate has been prepared. The species may be regarded as most nearly allied to *C. maxima*, Lindl.; it differs, however, in having ivory-white in place of light purple sepals and petals, and in the different shape and markings of the lip, which has also yellow side-lobes. It is said that sometimes as many as nine or ten flowers may be counted on the old racemes of newly imported plants. Experience indicates that tropical conditions are most suitable for this *Cattleya*, the healthiest examples being those grown along with *C. aurea* and *C. Lawrenciana* in a warm moist house where they receive a fair amount of sunshine in summer.

DESCRIPTION.—*Herb*; epiphytic; pseudobulbs fusiform-clavate, somewhat compressed, 6–12 in. long, monophyllous. *Leaves* oblong, rather blunt, coriaceous, 8–10 in. long, 2–2¼ in. wide. *Spathe* linear-oblong, obtuse, 3–5 in. long. *Racemes* 6–8 in. long, usually 3–6-flowered; bracts triangular-ovate, acute, ¼–⅓ in. long; pedicels 2–3 in. long. *Flowers* large, showy. *Sepals* spreading, oblong-lanceolate, subacute, about 3 in. long, recurved at the tip, ivory-white. *Petals* somewhat spreading, elliptic or rhomboid-elliptic, obtuse, margin wavy, about 3 in. long, thrice as wide as the sepals, ivory-white. *Lip* entire, wide oblong, about 3 in. long; lateral lobes yellow, enveloping the column; mid-lobe flattened, orbicular, markedly wavy and crispate, rose-coloured with dark-red veining at the base and a paler margin; disk yellow streaked with purple. *Column* clavate, curved, 1¼–1½ in. long. *Pollinia* 4, compressed, with linear reflexed appendages.

Fig. 1, column; 2, anther-cap and pollinia; 3, pollinia; 4, a single pollen-mass; 5, sketch of an entire plant:—1–4 *enlarged*, 5 *much reduced*.

8378

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TAB. 8378.

COLUMNEA GLORIOSA.

Costa Rica.

GESNERIACEAE. Tribe **CYRTANDREAE.**

COLUMNEA, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 1009.

Columnea gloriosa, *Sprague*; **affinis** *C. microcalyci*, **Hanst., a qua caule patule hirsuto, corolla superne latissima recedit.**

Herba epiphytica, perennis. *Caules* in planta culta penduli, plus minusve anisophylli, pilis pluricellularibus patule densiuscule hirsuti. *Folia* opposita, breviter petiolata, ovata vel ovato-oblonga, apice obtusa, basi rotundata, plus minusve inaequilateralia, 2–3·5 cm. longa, 1–1·7 cm. lata, valde convexa marginibus reflexis, supra dense hirsuta nervis impressis, subtus in nervis valde prominentibus hirsuta ceterum inconspicue puberula; nervi laterales obliqui, utrinque 3–4; petioli 2–3 mm. longi. *Flores* axillares, solitarii, erecti. *Pedunculus* 2–2·5 cm. longus. *Sepala* 5, inferne leviter connata, in statu explanato 1·5 cm. longa, 0·7 cm. lata, ungue latissimo ascendente, lamina patente late ovata marginibus valde reflexis, supra pilis articulatis rubescentibus dense villosa subtus sparsius brevius villosa. *Corolla* coccinea lutea, in toto 6·5–8 cm. longa, extra breviter sparsiuscule villosa; tubus basi postice valde gibbosus gibbere supra applanato, supra gibberem leviter constrictus, abhinc usque ad os leviter ampliatus, antice luteus in toto circiter 2·8 cm. longus; limbus valde bilabiatus, postice leviter arcuatus sursum valde ampliatus; lobus anticus porrectus, oblongo-lanceolatus, circiter 3·5 cm. longus, 1 cm. latus; lobi laterales in toto circiter 3·5 cm. longi, circiter 3 cm. cum galea connata; galea conspicue emarginata lobis rodundatis. *Stamina* 4; filamenta glabra, antice in vaginam medio 7·5 mm. longam lateribus 5–5·5 mm. longam corollae tubo in medio 2·5 mm. adnatam connata; antherae in quadram connatae. *Disci* glandula unica, postica, leviter emarginata, cum annulo angusto basia ovarii amplectente connata. *Ovarium* appresse villosum; placentae bilamellatae, introrsum ovuliferae; stylus superne pilis longiusculis articulatis aliis brevioribus glanduloso-capitatis intermixtis villoso-pubescens, inferne sparse puberulus.—T. A. SPRAGUE.

The *Columnea* which forms the subject of our illustration is perhaps the most handsome of the species yet introduced to cultivation. The plant from which the material for our figure has been obtained was purchased for the Kew collection in 1909 from Messrs. Haage & Schmidt, of Erfurt, who are well known on account of the large number of uncommon and interesting plants which they cultivate. A native of Costa Rica, *C. gloriosa* belongs to the section *Eucolumnea*,

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marked by the strongly 2-lipped corolla with the lateral lobes more or less adnate to the hood and by the solitary posticous disk-gland. Our plant may be readily distinguished from the other species in cultivation by its spreading calyx and its convex, hairy, reddish leaves with much reflexed margins; the sepals resemble miniature leaves. It also differs in its prostrate habit and in the exceptional size and brightness of its flowers. Seven other Columneas of the same section have already found a place in this work. The finest of these is *C. magnifica*. Kl. & Hanst., a native of Central America, figured in t. 8225. Allied to *C. magnifica* are three West Indian species: *C. rotundifolia*, Salisb., figured as "C. scandens" in t. 1614; the true *C. scandens*, Linn., t. 5118; and *C. hirsuta*, Sw., t. 3081. A pretty little plant with small ovate or ovate-oblong glabrous leaves is *C. Oerstediana*, Kl., from Costa Rica, figured in t. 8344; and *C. Schiedeana*, Schlecht., from Mexico, given in t. 4045, is remarkable for the colour of its flowers, the calyx being brick-red, and the corolla yellow with red spots. Lastly *C. crassifolia*, Hook., also Mexican, figured in t. 4330, is striking on account of its long, suberect, linear-lanceolate leaves. A comparison of the figures to which reference has been made will show that some of the best diagnostic characters are afforded by the shape and indumentum of the leaves and by the nature of the calyx. At Kew *C. gloriosa* is cultivated in a basket suspended from the roof; the long pendent shoots, which retain their leaves throughout the year, produce flowers freely during the summer. The plant requires tropical conditions with abundant moisture and shade from bright sunshine.

DESCRIPTION. — *Herb*; epiphytic, perennial. *Stems* prostrate or, under cultivation, pendent; rather densely clothed somewhat spreading hairs. *Leaves* opposite, those of a pair somewhat unequal, shortly stalked, ovate or ovate-oblong, obtuse, base rounded and slightly unequal, $\frac{3}{4}$–$1\frac{1}{4}$ in. long, $\frac{1}{2}$–$\frac{2}{3}$ in. wide, very convex with reflexed margins, densely hairy above with the nerves sunk, beneath the nerves raised and hairy, elsewhere faintly puberulous; lateral nerves 3–4 on each side, oblique; petiole about 1 lin. long. *Flowers* axillary, solitary, erect, on peduncles $\frac{3}{4}$–1 in long. *Sepals* 5, faintly connate at the base, spreading, wide ovate, with reflexed edges, densely clothed above, more sparingly beneath with reddish hairs, about ½ in. long, ¼ in. wide, with a broad ascending claw. *Corolla* scarlet and yellow, 2½–3 in. long, sparingly villous outside with short hairs; tube a little over 1 in. long, very gibbous at the base behind, somewhat constricted above the swelling, thereafter widening slightly to the mouth, yellow in front; limb markedly 2-lipped, slightly curved forward and much widened upward, anterior lobe straight, oblong-lanceolate, about 1½ in. long, over ⅓ in. wide, lateral lobes about 1½ in. long, over 1 in. wide, connate with the hood; hood distinctly emarginate with rounded lobes. *Stamens* 4; filaments glabrous, united in front in a sheath 3–4 lin. long, which is partially adnate to the corolla tube; anthers united at their tips. *Disk* composed of a solitary, posticous slightly emarginate gland continuous with a narrow ring surrounding the base of the ovary. *Ovary* adpressed hairy; placentas 2-lamellate, introrsely ovuliferous; style villous above with long, jointed hairs mixed with shorter glandular tipped ones, below sparingly puberulous.

Fig. 1, a single sepal; 2, base of corolla, seen in section and showing staminal attachment; 3 and 4, anthers; 5, ovary and posticous disk-gland; 6, stigma:—*all enlarged.*

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TAB. 8379.

PROSTANTHERA PULCHELLA.

Australia.

LABIATAE. Tribe PROSTANTHEREAE.

PROSTANTHERA, *Labill.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 1217.

Prostanthera pulchella, *Skan*; species distincta, foliis linearibus vel lineari-lanceolatis obtusis vel rotundatis, floribus in racemos laxos dispositis, calyce post anthesin aperto, corolla subrotata inconspicue bilabiata, lobis superis lobos inferos fere aequantibus, antheris inappendiculatis.

Suffrutex gracilis, floribundus, circiter 4 dm. altus, ramulis patentibus parce minuteque adpresse puberulis. *Folia* subsessilia, linearia vel lineari-lanceolata, 1–2 cm. longa, 1·5–2 mm. lata, obtusa vel rotundata, integra, fere glaberrima, parce glanduloso-punctata, siccitate plus minusve revoluta. *Flores* in racemos laxos erectos paulum strictos 5–8 cm. longos 10–18-floros dispositi; bracteae foliis similes vel minores, pedicellos aequantes vel leviter superantes; pedicelli 2–5 mm. longi, adpresse griseo-puberuli, apicem versus bibracteolati. *Calyx* circiter 5 mm. longus, extra parce minuteque puberulus et glandulis sessilibus paucis instructus, intra superne sat dense puberulus, post anthesin apertus; labia integra vel emarginata, labio supero 2·5 mm. longo 3 mm. lato quam labium inferum paulum breviore. *Corolla* subrotata, inconspicue bilabiata, lilacina, basi tubi alba, fauce punctis numerosis atropurpureis notata; tubus 3–5 mm. longus, basi angustus, fauce fere aequaliter ampliatus; limbus 1·5 cm. latus; labium superum 2-lobatum, paulum arcuatum, 5–6 mm. longum, 9 mm. latum, lobis obovatis 4 mm. longis 4–5 mm. latis leviter imbricatis crenulatis; labium inferum patens, 6 mm. longum, lobis oblongis vel ellipticis 5 mm. longis 3–4 mm. latis crenulatis. *Stamina* longiora corollae medium vix superantia; antherae puberulae inappendiculatae. *Nuculae* obovoideae, glabrae, foveolatae.—S. A. SKAN.

The interesting plant here figured was presented to Kew by Mr. T. A. Dorrien Smith of Tresco Abbey, Isles of Scilly, in 1908, under the name *Prostanthera phylicifolia*. Its introduction to English gardens we owe to Captain A. A. Dorrien Smith, who informs us that, so far as he can recollect, he obtained it from Messrs. Naian, nurserymen of Christchurch, New Zealand. That the plant is a *Prostanthera* will be very evident if our illustration be compared with the figure of *P. denticulata*, R. Br., given in t. 7934 of this work. Yet in spite of the general similarity of these two plants it will be noticed that they differ very markedly, for *P. denticulata* has setose leaves and is quite unlike our plant as regards calyx, corolla and anthers. Two other

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species which agree with our plant in habit and in having narrow leaves are *P. linearis*, R. Br., and *P. empetrifolia*, Sieb., the latter figured in t. 3405 of this work under the name *Chilodia scutellarioides*; both of these, however, have a distinctly two-lipped corolla, the upper lip being much the shorter, and are therefore very different from the species here figured. With the true *P. phylicifolia*, F. Muell., for which our plant is apparently mistaken in New Zealand, it has little in common, for *P. phylicifolia* is much more woody, its leaves are broader, shorter and conspicuously revolute, its corolla is altogether different, and its anthers are appendaged. The genus *Prostanthera*, which includes over fifty species, is restricted to Australia, the eastern portion of the continent being the home of the majority. Many of these species were formerly cultivated in this country as greenhouse plants together with other showy Australian species. Now they are hardly known outside the limits of botanical collections. But the one here figured, now introduced by way of New Zealand, is not one of these, nor indeed is it one that has ever been previously described. In Baron von Mueller's Second Census of Australian Plants, where forty-four species are enumerated, twenty-eight are recorded from New South Wales, eighteen from Victoria, thirteen each from Queensland and South Australia, seven from Western Australia and three from Tasmania; several of the species are common to two or more of these states. We have so far failed to ascertain from which of these subordinate areas *P. pulchella* may have found its way to New Zealand, while it is almost as difficult to suggest where it should be placed within the genus to which it belongs. In the Flora Australiensis the species are disposed in two sections. In one of these, *Euprostanthera*, the corolla tube is short and wide, the upper lip is short, very broad and erect, the lower lip is much longer and spreading, while the lips of the calyx are usually closed over the fruit. In the other, *Klanderia*, the corolla tube is incurved and dilated upwards, the upper lip is erect and concave and is as long as or longer than the spreading lower lip, while in fruit the lips of the calyx usually remain open. A third section, *Depresmenilia*, has been added in the Natürlichen Pflanzenfamilien; the most salient feature of this is that the calyx is shortly

5-toothed. *P. pulchella*, in which the calyx has two entire or emarginate lips, cannot be referred to the last section. If it must be placed in one or other of the remaining sections it is to *Euprostanthera* rather than to *Klanderia* that it should be referred, but it does not by any means satisfactorily accord with the characters exhibited by the other species of the section. In the gardens of Tresco Abbey *P. pulchella* forms a shrub which thrives well in the open and flowers freely in April. At Kew it is cultivated in the Temperate House, where it grows satisfactorily when planted in sandy peat and given the treatment suitable for species of *Boronia* and other Australian genera.

DESCRIPTION.—*Undershrub*; about 1½ ft. high, of graceful habit and freely flowering; twigs spreading, sparingly finely adpressed puberulous. *Leaves* subsessile, linear or linear-lanceolate, ⅓–¾ in. long, 1 lin. wide, obtuse or rounded, entire, almost glabrous, sparingly gland-dotted. *Flowers* in lax erect rather strict 10–18-flowered racemes, 2–3 in. long; bracts like the leaves but smaller, as long as or rather longer than the 1–2 lin. long pedicels which are adpressed grey-puberulous and 2-bracteolate at the tip. *Calyx* about 2½ lin. long, sparingly finely puberulous and glandular outside, densely puberulous near the top within, lips entire or emarginate, the upper rather shorter than the lower, remaining open after flowering. *Corolla* subrotate, faintly 2-lipped, lilac, the tube white at the base, the throat with dark purple dots; tube about 2 lin. long, narrow at the base; limb 8 lin. wide; upper lip 2-lobed, slightly arched, 2½–3 lin. long, 4½ lin. wide, lobes obovate, 2 lin. long and about as wide, faintly imbricate and crenulate; lower lip spreading, 3 lin. long, lobes oblong or elliptic, 2½ lin. long, about 2 lin. wide, crenulate. *Stamens* didynamous, the larger pair barely reaching the middle of the corolla; anthers puberulous and without appendages. *Nutlets* obovoid, glabrous, foveolate.

Fig. 1, a pair of leaves; 2, bracts, bracteoles, calyx and pistil; 3, corolla, laid open; 4 and 5, anthers; 6, ovary:—*all enlarged.*

8380

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TAB. 8380.

PTERONIA INCANA.

South Africa.

COMPOSITAE. Tribe ASTEROIDEAE.

PTERONIA, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 259.

Pteronia incana, *DC. Prod.* vol. v. p. 358; *Harv. in Harv. et Sond. Fl. Cap.* vol. iii. p. 100; affinis *P. glaucae*, Thunb., sed foliis planis, involucri bracteis anguste lanceolatis subacutis marginibus hyalinis differt.

Frutex ramosissimus, 1–1·3 m. altus; rami graciles, elongati, leviter angulati vel subteretes, glabrescentes; ramuli cinereo-lanati. *Folia* opposita, linearia vel oblanceolato-linearia, basin versus angustata, obtusa vel subacuta, 0·5–2 cm. longa, 1–3 mm. lata, plana, cinereo-lanata. *Capitula* numerosa, circiter 8-flora, obconica, circiter 2 cm. longa et lata, flava. *Involucri bracteae* 4–5 seriatae, anguste lanceolatae vel lineari-lanceolatae, subacutae, 2·5–8 longae, 1–1·75 mm. latae, margine hyalinae, glabrae. *Corollae* tubus 7–8 mm. longus, apice 1·75 mm. diametro, ad basin leviter angustatus, glaber; lobi 6, lanceolati, subacuti, 3·5 mm. longi, 1 mm. lati, glabri. *Antherae* 4 mm. longae. *Stylus* teres, 1 cm. longus, glaber, profunde bilobus, lobis 3 mm. longis apice triangulare stigmatosis, *Achaenia* inferne longe villosa, anguste oblongo-ellipsoidea, 3 mm. longa, 1·5 mm. diametro. *Receptaculum* breviter setosum. *Pappi setae* numerosae, 8 mm. longae, barbellatae.—*P. xantholepis*, DC. l.c. *Eupatorium cinereum*, Linn. f. Suppl. p. 354.—J. HUTCHINSON.

The genus *Pteronia*, to which the subject of our illustration belongs, includes upwards of sixty species of small dry or glutinous South African shrubs. The species here figured, *P. incana*, has a wide range within the area occupied by the genus, and extends from Lesser Namaqualand in the north-west to the Albany district in the south-east. Its nearest ally is *P. glauca*, Thunb., from which our plant is readily distinguished by its flat and usually longer leaves and by its narrower glabrous involucral bracts which have hyaline margins. This, the first species of the genus to be figured in this work, for the plant figured at t. 1697 as *P. pauciflora* is a *Helipterum*, is a favourite in Riviera gardens, where it flowers freely from March till May and forms a bush some three feet high, which is attractive alike for its wealth of blossom and its remarkably sweet peach-

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like odour. The material from which our figure has been prepared came from the garden of Lady Hanbury at La Mortola, Ventimiglia, to which the species was first introduced by the late Mr. D. Hanbury in June, 1872. At Kew the plant thrives well under the conditions suitable for South African heaths, but it does not flower at all freely, probably owing to the absence of sufficient sunshine during the winter months.

DESCRIPTION.—*Shrub*, 3–4 ft. high, much branched; branches long and slender, slightly angular or nearly cylindric, almost glabrous; twigs grey pubescent. *Leaves* opposite, linear or oblanceolate-linear, narrowed towards the base, obtuse or subacute, $\frac{1}{4}$–$\frac{3}{4}$ in. long, about 1 lin. wide, flat, grey pubescent. *Heads* numerous, about 8-flowered, obconic, about $\frac{3}{4}$ in. long and broad, yellow. *Bracts* of the involucre 4–5-seriate, narrow lanceolate or linear-lanceolate, somewhat acute, 1$\frac{1}{2}$–4 lin. long, under 1 lin. wide, glabrous and with hyaline margins. *Corolla* tube about 4 lin. long, mouth under 1 lin wide, slightly narrowed at the base, glabrous; lobes 6, lanceolate, subacute, about 2 lin. long, $\frac{1}{2}$ lin. wide, glabrous. *Anthers* 2 lin. long. *Style* terete, 5 lin. long, glabrous, deeply 2-lobed; lobes 1$\frac{1}{2}$ lin. long, with triangular stigmatic tips. *Fruit* narrowly oblong-ellipsoid, 1$\frac{1}{2}$ lin. long, under 1 lin. wide, villous with long hairs below. *Receptacle* shortly setose. *Pappus* of numerous barbellate setae, $\frac{1}{3}$ in. long.

Fig. 1, leaf; 2, involucral bracts; 3, flower-head; 4, flower; 5, setae of the pappus; 6, anthers; 7, style-arms:—*all enlarged.*

M.S. del. J.N.Fitch lith.

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TAB. 8381.

SAUSSUREA VEITCHIANA.

Central China.

COMPOSITAE. Tribe CYNAROIDEAE.
SAUSSUREA, *DC.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 471.

Saussurea Veitchiana, *Drummond et Hutchinson in Kew Bull.* 1911, p. 190; species e grege *S. bracteae*, Decne, a *S. obvallata*, Wall., et a speciebus aliis amplius bracteatis capitulis latius corymbosis demum longe pedunculatis, a *S. uniflora*, Wall., pappo conspicue 2-seriato, a *S. Schultzii*, Hook. f., margine foliorum argute denticulato nec crasse crenato-serrato dignoscitur; a *S. iodostegia*, Hance, cujus maxime affinis, propter folia superiora basi dilatata necnon phyllaria acutiora satis distincta.

Herba erecta, 40–45 cm. alta, pluricaulis caulibus sulcatis superne floccosis. *Folia* radicalia numerosa, breve petiolata, anguste oblongo-lanceolata, caulina sparsa, sessilia, basi subinflata; semiamplexicaulia ima vaginantia, omnia acuta, margine undulata leniter denticulata, nitide virescentia, costa crassa pallidiore vel in supremis purpurascente, supra fere glabrata, subtus laxe pilosa, majora circiter 20 cm. longa, fere 4 cm. lata, summum caulem versus sensim diminuentia denique in bracteas membranaceas ovato-lanceolatas apice argute acuminatas plus minusve cymbiformes purpurascentes abeuntia. *Capitula* 2–10, plus minusve araneosa fere ovoidea, 2·5 cm. longa, parte ventricosa circiter 1·2 cm. lata, flosculos 20–30 atropurpureos includentia, pedunculis superne incrassatis fistulosis corymbosim depositis suffulta. *Receptaculum* circiter 5 mm. latum, fimbrillis subpellucidis munitum. *Phyllaria* imbricata, exteriora ovato-lanceolata 10 mm. longa, 4 mm. lata, laxe pilosa, extra nigrescentia, interiora longiora magis acuminata. *Corollae* tubus 8 mm. longus, tenuis sed superne subito campanulatus, limbus 5-partitus segmentis linearibus basi subsaccatis. *Antherae* basi caudato-lanatae, nigrescentes. *Cypselae* obtuse quadrangulares, subglabrae; pappus 2-seriatus, setis exterioribus paucis scabris, interioribus duplo longioribus plurimis plumosis demum fuscescentibus.—J. R. DRUMMOND.

The Composite genus *Saussurea*, including some seventy species, is characteristic of the mountainous and temperate regions of the northern hemisphere. The striking plant here figured belongs to a well-defined group of species characterised by the flower-heads being more or less enclosed in the inflated, bladderlike, membranous, veined bracts or uppermost leaves, which differ in coloration as well as in texture from the leaves proper. This group has its headquarters in the Alpine regions of India and China, and the species now figured is one of the many interesting plants from the Chinese portion of this area for whose introduction horticulture is indebted to Mr. E. H. Wilson when collecting on behalf of Messrs. J. Veitch & Sons. The seeds of this species were obtained at Fang in

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Central China and reached Messrs. Veitch towards the end of 1901. Plants were raised in 1902, and from one of these, presented by Messrs. Veitch to the Royal Botanic Garden, Glasnevin, in December, 1904, came the material from which our plate has been prepared. Planted in a good border and protected by a wall facing south-east, *S. Veitchiana*, Mr. Moore informs us, has proved perfectly hardy at Glasnevin. The soil which has been found suitable is a light loam, fairly deep and well-manured. The plant, to which the dark flowers impart a very remarkable appearance, flowered for the first time in 1909 and again more strongly in 1910. As Mr. Drummond points out, the species though nearly related to the others which constitute the 'bracteate' group is nevertheless readily distinguishable from most of them. Its closest ally is the as yet little-known *S. iodostegia*, so named on account of its violet-tinted floral leaves, described by the late Dr. Hance from specimens collected on Siao Wu-tai-shan by Mr. Hancock so long ago as 1876.

DESCRIPTION.—*Herb*, 2–3 ft. high, with about 2–5 leafy scapes from a tufted crown; flowering stems erect, rigid, floccose upward, grooved, leafy. *Leaves* green above with a pale stout midrib, loosely hairy beneath, those lowest down about 10 in. long, 2 in. wide just below the middle, oblong-linear, acute, sheathing; upper ovate-lanceolate, semiamplexicaul, gradually smaller upwards, with expanded, subinflated, rounded subauriculate bases and finely denticulate undulate margins, passing just below the inflorescence into thin, acuminate, blush-coloured to purplish bracts. *Heads* nearly ovoid, over 1 in. long and about ¾ in. wide at the thickest part; peduncles hollow and enlarged below the heads, receptacle beset with fine semi-transparent hair-like processes. *Florets* about ⅓ in. long; tube narrow, slender below, suddenly wide campanulate above, limb 4–lobed, segments linear, somewhat saccate at the base. *Anthers* alternately black, with woolly tails. *Cypselae* obtusely 4-angled. *Pappus* double, bristles of the outer series few, scabrous, of the inner copious, twice as long, feathery.

Fig. 1, section of flower-head; 2, a single floret; 3, a process of the receptacle; 4, outer pappus hairs; 5, inner pappus hairs; 6, anther; 7, upper portion of style with style-arms:—*all enlarged*.

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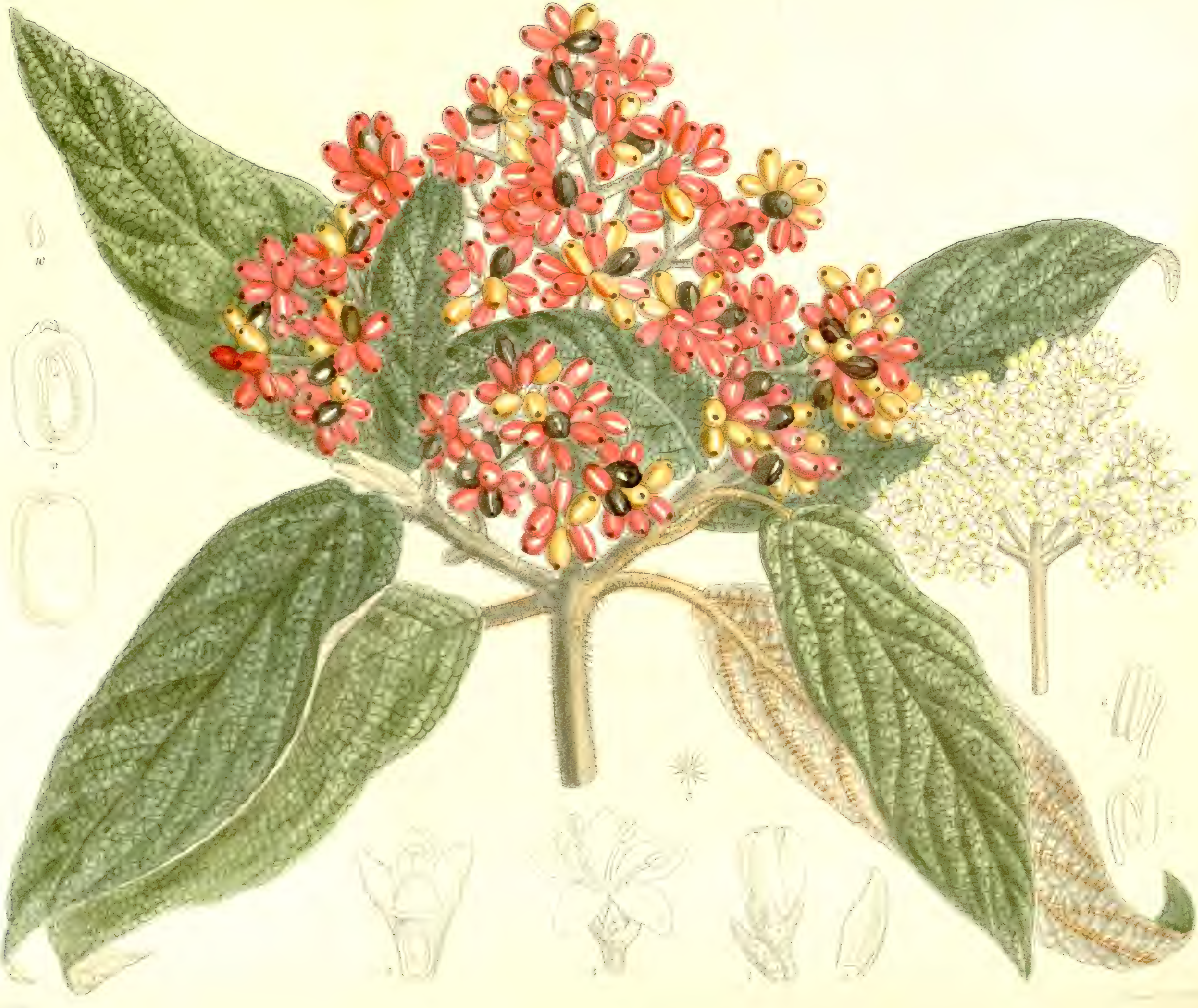

Tab. 8382.

VIBURNUM RHYTIDOPHYLLUM.

Western China.

Caprifoliaceae.

Viburnum, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 3.

Viburnum rhytidophyllum, *Hemsl. in Journ. Linn. Soc. Bot.* vol. xxiii. p. 355; *J. H. Veitch in Journ. Roy. Hort. Soc.* vol. xxviii. 1903, p. 63, f. 23; *Gard. Chron.* vol. xxxix. 1906, p. 418, *et* vol. xlii. 1907, p. 220; species ex affinitate *V. Lantanae*, Linn., a quo differt imprimis foliis sempervirentibus oblongo-lanceolatis subacuminatis floribusque sessilibus.

Frutex vel *arbor* parva novellis tomentosis; rami florigeri crassi, rigidi, recti, internodiis quam foliis multoties brevioribus. *Folia* opposita, petiolata, crassa, subcoriacea, rigida, oblongo-lanceolata, cum petiolo 10–25 cm. longa, 2–6 cm. lata, sursum sensim attenuata, obtusa vel subacuta, basi rotundata vel brevissime auriculata, margine apicem versus obscure denticulata, supra glabra, subnitida, grosse rugosa, subtus dense albo- vel brunneo-tomentosa, pilis bulbo-stellatis multo-radiatis; venae conspicuae, supra impressae, subtus elevatae. *Inflorescentia* terminalis, composita, umbellato-cymosa, quaternatim ramosa, subhemisphaerica, quam folia brevior, usque ad 15 cm. diametro, undique stellato-tomentosa. *Bracteae* squamiformes, inconspicuae; bracteolae geminatae, lineares vel ovatae, calycem aequantes vel paulo excedentes. *Flores* albi, subsessiles, 5–7 mm. diametro. *Calyx* tomentosus, lobis parvis ovatis obtusiusculis. *Corolla* fere rotata, lobis oblongo-ovatis obtusis. *Stamina* 5, exserta, filamentis filiformibus antheris oblongis luteis. *Ovarium* inferum, uniloculare, uniovulatum; styli 3, brevissimi, connati, stigmatibus subcapitatis. *Fructus* oblongus, compressus, circiter 8 mm. longus, primum ruber, demum niger, nitidus. *Semen* unicum, pendulum, albuminosum; embryo minutissimus, in apice albuminis positus.—W. Botting Hemsley.

Viburnum rhytidophyllum is one of the most remarkable shrubs which the recent exploration of Western China has given to gardens. It is perfectly evergreen, but of a type very distinct from any evergreen species in the genus, resembling more, in its excessively wrinkled leaves, the species of the "Lantana" group. It is, however, absolutely different from those or any other *Viburnum*, and is, indeed, one of the best-marked of all shrubs in cultivation.

Introduced by Mr. E. H. Wilson for Messrs. Veitch in 1900, it has withstood, without any injury, all the frosts of the last decade. The plant from which our figure was prepared was purchased in 1906, and is growing against a south wall. It does not need such protection as that position gives, but, so far at any rate, has flowered and borne fruit

July, 1911.

more freely there than in the open. It forms its inflorescence and partially develops it in autumn, but the flowers do not expand until the following May. They are of a dull yellowish white and not particularly ornamental. The fruits turn red in September, and the plant then acquires its greatest beauty; finally the fruits turn black.

V. rhytidophyllum requires a rich loamy soil and appears to thrive anywhere except on a bleak, wind-swept spot. It can be increased easily by means of cuttings made of the summer growths about the end of July, and placed in pots of sandy soil in a slightly heated, close frame.

DESCRIPTION.—*Shrub* or small *tree*; young shoots tomentose; flowering twigs stout, rigid, straight, their internodes much shorter than the leaves. *Leaves* opposite, petioled, thick, firm and subcoriaceous, oblong-lanceolate, 4–10 in. long, including the petiole, $\frac{3}{4}$–$2\frac{1}{4}$ in. wide, gradually narrowed to an obtuse or subacute tip, base rounded or slightly auriculate, obscurely toothed towards the tip, glabrous, somewhat polished and coarsely rugose above, densely white or brown tomentose with many-rayed stellate hairs beneath; nerves conspicuously impressed above and raised beneath. *Inflorescence* terminal, compound, umbellately cymose, four times branched, almost globose in outline, shorter than the leaves, about 6 in. across, everywhere stellate-tomentose. *Bracts* scale-like and inconspicuous; bracteoles geminate, linear or ovate, as long as the calyx or even rather longer. *Flowers* white, almost sessile, $2\frac{1}{2}$–$3\frac{1}{2}$ lin. across. *Calyx* tomentose, with small ovate rather blunt lobes. *Corolla* almost rotate, lobes oblong-ovate, blunt. *Stamens* 5, exserted; filaments filiform; anthers oblong, yellow. *Ovary* inferior, 1-celled and 1-ovuled; styles 3, very short, united, their stigmas subcapitate. *Fruit* oblong, compressed, about $\frac{1}{3}$ in. long, at first bright red, ultimately quite black, polished. *Seed* solitary, pendulous, albuminous; embryo very minute, lodged at the apex of the albumen.

Fig. 1, a flower and bracteole; 2, a separate bracteole; 3, an expanded flower; 4, pistil and part of calyx, the ovary in section and showing the pendulous ovule; 5, a hair from the calyx; 6 and 7, anthers, seen from in front and from behind; 8, fruit; 9, the same in longitudinal section; 10, embryo: *—all enlarged.*

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M.S. [illegible]

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TAB. 8383.

SPIRAEA VEITCHII.

Central China.

ROSACEAE. Tribe SPIREAE.

SPIRAEA, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 611.

Spiraea (Chamaedryon) **Veitchii,** *Hemsl. in Gard. Chron.* vol. xxxiii. 1903, p. 258; *J. H. Veitch in Journ. Roy. Hort. Soc.* vol. xxviii. 1903, p. 61; species *S. canescenti*, D. Don, et *S. Henryi*, Hemsl., proxime accedens, ab ambabus tamen foliis margine integris supra glabris facillime distinguenda.

Frutex 3–4-metralis, arcuatim ramosa; ramuli juveniles densius pubescentes; rami graciles, dense foliati; cortex primum rubescens. *Folia* breve petiolata, membranacea, ovata, oblonga vel interdum obovata, obtusa vel subacuta et minutissime mucronulata, basi cuneata, margine integerrima, 2–4 cm. longa, 0·6–2 cm. lata, supra glabra, subtus minutissime puberula; petiolus pubescens, 2–3 mm. longus. *Flores* sat numerosi in corymbos 4–7 cm. latos ramulos laterales dense foliatos 8–13 cm. longos terminantes densissime aggregati; flores singuli 4 mm. lati. *Calyx* latissime infundibularis, extra puberulus, lobis triangularibus acutis tubo brevioribus subpatentibus. *Petala* alba, suborbicularia. *Carpella* glabrescentia, membranacea, 3 mm. longa, introrsum dehiscentia.—W. J. BEAN.

The handsome Chinese *Spiraea* here figured is, as Mr. Bean points out, most nearly allied to the Himalayan *S. canescens*, D. Don, and the Chinese *S. Henryi*, Hemsl. From the former it is readily distinguished by its glabrous leaves, which are never toothed towards the tip as they usually are in *S. canescens*; from the latter it is distinguished by the same characters and in addition by the fact that in *S. Henryi* the leaves are very considerably larger. In the original description some stress has also been laid on the distichous arrangement of the branches in *S. Veitchii*; this, however, is a character which is more apparent than real, and cannot therefore be said to be altogether distinctive. The short flowering twigs, from whatever aspect of the stem they may originate, always assume an erect position, with the result that every corymb faces upwards and is situated in the same plane as its neighbours. This arrangement, which imparts to the branchlets the spuriously distichous disposition alluded to, transforms the arching branches on which the corymbs are borne into long flower sprays of striking and singular beauty. Mr. E. H. Wilson, who discovered this species in Western Hupeh in 1900 (Herbarium No. 2276) when collecting for Messrs. J. Veitch & Sons, and introduced it that year to European gardens, informs us that he considers it the finest of the Chinese Spiraeas. This opinion has not been belied by experience since it was expressed, and as there appears to be no doubt as to the perfect hardiness of the species, it should make a valuable addition to cultivated shrubs. The original plants in Messrs. Veitch's nursery at Coombe Wood, from one of which, in flower in July, 1909, the material for our figure was obtained, make growths six to eight feet long in a season. Such shoots are barren the first year, but in the following season develop short flowering branches from the nodes. Like nearly all the Spiraeas, *S. Veitchii* requires a rich loamy soil and can be propagated by late summer cuttings. Such pruning as it requires consists of the removal of old and crowded stems as soon as the plant is out of flower.

DESCRIPTION.—*Shrub* up to 10 or 12 ft. high, of spreading habit; branches very leafy, arching, graceful, reddish when young and covered the first year with a close pubescence. *Leaves* deciduous, entire, oval, oblong or occasionally obovate, cuneate at the base, rounded and with a small mucro at the apex, $\frac{3}{4}$–$1\frac{1}{2}$ in. long, $\frac{1}{4}$–$\frac{3}{4}$ in. wide, glabrous above, beneath very minutely puberulous; petiole pubescent, $\frac{1}{12}$–$\frac{1}{8}$ in. long. *Corymbs* $1\frac{1}{2}$–$2\frac{1}{2}$ in. in diameter, terminal on short, lateral, leafy branchlets. *Flowers* very numerous and densely arranged, $\frac{1}{6}$ in. in diameter. *Calyx* broadly funnel-shaped with acute triangular lobes, puberulous. *Petals* white, almost orbicular. *Carpels* glabrescent, $\frac{1}{8}$ in. long, membranaceous, dehiscing ventrally.

Fig. 1, an expanded flower; 2, calyx and pistil; 3, calyx, laid open, showing the carpels; 4, branchlet of a corymb, showing fruit; 5, ripe fruit:—*all enlarged except 4, which is of natural size.*

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M.S. del. J.N. Fitch lith.

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TAB. 8384.

DRACOCEPHALUM ARGUNENSE.

North-eastern Asia.

LABIATAE. Tribe NEPETEAE.

DRACOCEPHALUM, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 1199.

Dracocephalum argunense, *Fisch. ex Link, Enum. Pl. Hort. Berol.* vol. ii. p. 118; *Reichb. Ic. et Descr. Pl.* t. 1; *Lodd. Bot. Cab.* t. 797; *Sweet, Brit. Fl. Gard.* vol. i. t. 47; *Benth. Lab. Gen. et Sp.* p. 499, et *in DC. Prodr.* vol. xii. p. 402; *Komarov in Acta Horti Petrop.* vol. xxv. p. 356; species *D. Ruyschianae,* Linn., valde affinis, sed floribus multo majoribus praesertim differt.

Herba perennis. *Caules* graciles, saepe numerosi et simplices, 3-6 dm. alti, praesertim in nodos plus minusve pubescentes, interdum inferne glabrescentes. *Folia* lineari-lanceolata, linearia vel lanceolata, 3-7 cm. longa, 2-4 mm. raro ad 10 mm. lata, apice obtusa, interdum leviter emarginata, basi in petiolum brevissimum attenuata, integra, margine saltem siccitate plus minusve revoluta, supra scaberula, infra minute glanduloso-punctata, in costam pilis paucis hispidis praedita, saepe hispidulo-ciliata; axillae foliorum saepe ramulis abbreviatis folia minora gerentibus. *Verticillastri* 2-6-flori, approximati vel inferiores distantes, racemum spiciformem terminalem 4-7 cm. raro ad 12 cm. longum formantes. *Bracteae* ellipticae vel ovato-lanceolatae, acuminatae, subspinescentes, basi cuneatae, albo-ciliatae, calycem saepissime paulum breviores. *Bracteolae* lanceolatae, circiter 1 cm. longae. *Pedicelli* 3-6 mm. longi, pubescentes. *Calyx* circiter 2 cm. longus, tubuloso-campanulatus, basi sinuum inter dentes breviter protrusus, puberulus vel interdum pilosus; labium superum 3-fidum, dentibus 5-7 mm. longis lateralibus triangulari-lanceolatis quam dens medius elliptico-ovatus minoribus; labium inferum 2-fidum, dentibus triangulari-lanceolatis vix 1 cm. longis ut ceteribus subspinescentibus et breviter ciliatis. *Corolla* 3-4 cm. longa, violaceo-coerulea, extra albo-punctata, plus minusve villosa, intra in labium inferum albo-maculata, praesertim in labium superum villosa; tubus incurvatus, inferne vix 2 mm. latus, superne abrupte ampliatus et valde ventricosus, 10-12 mm. latus; labium superum suborbiculare, galeatum, 8 mm. longum, emarginatum; labium inferum patens, circiter 12 mm. longum, lobo medio obovato-obreniforme 10-12 mm. latum, lobis lateralibus subrotundis multo majore. *Stamina* e tubo exserta, labio supero paulum breviora; antherae dense albo-villosae. *Nuculae* trigonae, 3-5 mm. longae, inferne albo-villosae.—*D. Ruyschiana,* var. *speciosum,* Ledeb. Fl. Ross. vol. iii. p. 390; Gartenfl. 1880, p. 375, cum fig. *D. Ruyschiana,* var. *japonicum,* A. Gray in Mem. Amer. Acad. N.S. vol. vi. p. 403; Masters in Gard. Chron. 1879, vol. xii. p. 166, fig. 29. *D. Ruyschiana,* Franch. et Savat. Enum. Pl. Jap. vol. i. p. 376; Franch. Pl. David. p. 240, non Linn. *D. Ruyschianum,* Forbes & Hemsl. in Journ. Linn. Soc. vol. xxvi. p. 292. *D. altaicense,* Hort. Vilm. ex Vilm. Fl. Pl. Terre, ed. 1, p. 250, non Laxm.—S. A. SKAN.

The handsome *Dracocephalum* which is the subject of our plate belongs to the small section *Ruyschiana,* looked upon by authors earlier than Linnaeus as a separable genus, which is characterized by having villous anthers. This section includes the two species *D. Ruyschiana*, Linn., and *D. austriacum*, Linn. To these two plants *D. argunense* is very closely allied, especially to the former, from which it is only to be satisfactorily distinguished by its much larger flowers; the latter, which agrees with our plant as regards the size of its flowers, is readily distinguished by being much more hairy and by usually having divided leaves whose segments are spinescent at the tip. In his recent Flora Mandshuriae, however, Mr. Komarov has retained *D. argunense* as a distinct species, a decision with which we fully concur. Komarov also unites with our plant the Japanese one described by the late Professor Gray as *D. Ruyschianum*, var. *japonicum*, though it has to be remarked that the specimens of this Japanese plant in the Kew herbarium have the calyx much more hairy. The typical form, now figured, is a native of Dahuria, Mandshuria, the Amur region and the province of Chili in North China. It is an old denizen of European gardens, having been first introduced in 1822. The Japanese form was apparently first introduced by Messrs. J. Veitch & Sons, who had it in cultivation at Coombe Wood in 1879, when it was figured in the Gardeners' Chronicle under the name suggested by Gray. This introduction was effected through the agency of the late Mr. C. Maries, who had obtained the plant on the central mountains of Japan. The reintroduction of the typical form has again been due to Messrs. Veitch, who received seeds in October, 1909, from their collector, Mr. W. Purdom. These seeds were obtained at Weichang in Northern Chili; the plants raised therefrom reached a flowering size in August, 1910, when the material on which the accompanying figure has been based was sent from Coombe Wood, where, Messrs. Veitch inform us, the plant grows well in good sandy loam and in a sunny situation.

Description.—*Herb*, perennial; stems slender, usually several, simple, 1–2 ft. high, more or less hairy, especially at the nodes, sometimes nearly glabrous lower down. *Leaves* linear, linear-lanceolate or lanceolate, $1\frac{1}{4}$–$2\frac{3}{4}$ in. long, 1–2 rarely as much as 5 lin. wide, obtuse, or occasionally slightly emarginate, narrowed at the base to a very short petiole, margin entire, slightly revolute, scaberulous above, finely glandular-punctate beneath, often hispidly ciliate, often with short axillary branches bearing smaller leaves. *Whorls* 2–6-flowered, close set or the lower somewhat remote, making a terminal raceme 1½–2¾ in., rarely over 4 in. long; bracts elliptic or ovate-lanceolate, acuminate, slightly spinescent, cuneate, white-ciliate, rather shorter than the calyx; bracteoles lanceolate, about 5 lin. long; pedicels 1–3 lin. long, pubescent. *Calyx* about ¾ in. long, tubular campanulate, the bases of the sinuses slightly produced outwards, puberulous or sometimes pilose; upper lip 3-fid, lobes 2½–3½ lin. long, the lateral triangular-lanceolate, smaller than the elliptic-ovate central; lower lip 2-fid, teeth triangular lanceolate, about 4 lin. long, all slightly spinescent and shortly ciliate. *Corolla* 1¼–1½ in. long, violet, white dotted externally, villous especially on the upper lip; tube incurved, hardly 1 lin. wide below, abruptly enlarged and ventricose above, 5–6 lin. wide; upper lip suborbicular, hooded, 4 lin. long, emarginate; lower lip spreading, about 6 lin. long, midlobe obovate-obreniform, 5–6 lin. wide, much larger than the subrotund side-lobes. *Stamens* exserted from the tube but rather shorter than the upper lip; anthers densely white-villous. *Nutlets* trigonous, about 2 lin. long, white-villous below.

Fig. 1, calyx and pistil; 2, corolla, laid open; 3 and 4, anthers; 5, ovary and disk:—*all enlarged.*

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TAB. 8385.

CUCUMIS METULIFERUS.

Tropical and South-east Africa.

CUCURBITACEAE. Tribe CUCUMERINEAE.

CUCUMIS, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 826.

Cucumis metuliferus, *E. Meyer ex Schrad. Reliq. in Linnaea*, vol. xii. p. 406, and in *Drège Zwei Pflanz. Docum.* pp. 176 and 150; *Naud. in Ann. Sc. Nat.* ser. 4, vol. xi. p. 10; *Rev. Hort.* 1860, p. 187, fig. 42; *Harv. & Sond. Fl. Cap.* vol. ii. p. 495; *Oliver, Fl. Trop. Afr.* vol. ii. p. 543; *Cogniaux in DC. Monogr. Phanerog.* vol. iii. p. 499; affinis *C. sativo*, Linn., sed fructu spinis conicis elongatis armato nec sparse tuberculato differt.

Herba scandens, cirrhosa. *Caulis* gracilis, hispidus vel setoso-hirsutus. *Folia* alterna; petiolus 2–11 cm. longus, hispidus; lamina 5–12 cm. longa et lata, 3–5-lobata, utrinque hirsuta vel subhispida, lobis brevibus acutis vel breviter cuspidato-acuminatis irregulariter dentatis. *Cirrhi* simplices, graciles, parce hispidi. *Flores* unisexuales, masculis fasciculatis femineis solitariis extra (ovario spinoso-tuberculato excepto) cum pedunculis subhispido-villosis. *Pedunculi* masculorum 0·5–2 cm. longi, femineorum 2–3·5 cm. longi. *Calycis* tubus 4–5 mm. longus, obconico-campanulatus, lobis 2–2·5 mm. longus subulatis. *Corolla* 3–4 cm. diametro, 5-loba, lutea, lobis ovatis obtusis. *Stamina* 3; filamenta brevissima, vix 1 mm. longa; antherae oblongae, 2·5–3 mm. longae, minutissime ciliatae, apice crenulato-cristatae. *Stylus* 4 mm. longus; stigma magnum, 3-lobum. *Fructus* 6–12 cm. longus, 4–7 cm. crassus, oblongus vel ellipsoideus, obtuse trigonus, spinis crassis anguste conicis 5–13 mm. longis echinatus, pulchre ruber. *Semina* 6 mm. longa, ovata, obscure marginata, levia.—*C. Tinneanus*, Kotschy & Peyr. Pl. Tinn. p. 17, t. 8.—N. E. BROWN.

The Horned Cucumber which is the subject of our illustration was originally discovered by Drège in Pondoland in the vicinity of St. John's River. But although it was first reported from South-east Africa, the plant would appear to be rare there, for it has not been met with by any subsequent collector. In Tropical Africa, however, it is very widely distributed; it has been reported from Nubia, Abyssinia and Jur, as well as from Mozambique on the eastern side of the continent; from Nigeria, Cameroons and Angola on the western side. The specimens in the collection at Kew were raised from seeds presented to the establishment in 1899 by Mr. C. H. Stanton, Field Place, Stroud; these seeds had been collected by Major A. E. Stanton, of the 11th Soudanese, while serving at Khartum. The plant when given the treatment suitable for the common Cucum-

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ber grows vigorously and fruits freely. The fruits are of an olive green colour until they are quite ripe, when they become rich scarlet; they remain on the stems long after the latter are dead, and at this stage, as they hang in the late autumn from the rafters of the Tropical Aquatic house at Kew, along with the fruits of the other gourds grown there, are highly ornamental. *C. metuliferus* is easily propagated from its seeds, which are produced in quantity.

DESCRIPTION.—*Herb*; climbing by means of tendrils. *Stem* slender, hispid or setose. *Leaves* alternate; petiole 1–4 in. long, hispid; blade 3–5-lobed, the lobes acute or cuspidate-acuminate, their margin irregularly toothed, hispid on both sides, 2–5 in. long, and as much across. *Tendrils* simple, slender, sparingly hispid. *Flowers* 1-sexual, the males in clusters, the females solitary, almost hispidly villous outside like the peduncles; the ovary with spinulous tubercles; male peduncles 2–10 lin. long, females $\frac{3}{4}$–$1\frac{1}{4}$ in. long. *Calyx* with an obconic-campanulate tube, 2–$2\frac{1}{2}$ lin. long; teeth subulate, half as long as the tube. *Corolla* 5-lobed, $1\frac{1}{4}$–$1\frac{1}{2}$ in. wide, yellow; lobes ovate, obtuse. *Stamens* 3; filaments very short; anthers oblong, 1–$1\frac{1}{2}$ lin. long, very finely ciliate, with crenulate apical crests. *Style* 2 lin. long; stigma large, 3-lobed. *Fruit* $2\frac{1}{2}$–5 in. long, $1\frac{1}{2}$–$2\frac{1}{2}$ in. thick, oblong or ellipsoid, bluntly 3-gonous, beset with thick narrowly conical spines $\frac{1}{4}$–$\frac{1}{2}$ in. long, rich scarlet when ripe. *Seeds* $\frac{1}{4}$ in. long, ovate, smooth, faintly margined.

Fig. 1, section of a lower portion of a male flower, showing the insertion of the stamens; 2, a stamen; 3, style and stigma of a female flower; 4, tubercles from an ovary; 5, a seed:—*all enlarged.*

M.S. del. J.N. Fitch lith.

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TAB. 8386.

CYPRIPEDIUM SPECIOSUM.

Japan.

ORCHIDACEAE. Tribe CYPRIPEDIEAE.

CYPRIPEDIUM, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 634. Cypripedilum, *Pfitzer in Engl. Pflanzenreich, Orch. Pleon.* p. 28.

Cypripedium speciosum, *Rolfe in Kew Bulletin*, 1911, p. 207; species a *C. macrantho*, Swartz, floribus pallidis roseo-striatis et staminodio acutiore differt.

Herba 20–40 cm. alta. *Caules* erecti, crassiusculi, pubescentes, foliosi. *Folia* sessilia, ovato-oblonga vel elliptico-oblonga, acuta vel breviter acuminata, ciliolata, breviter pubescentia, 7–10 cm. longa, 2–5 cm. lata, plicata. *Bracteae* foliosae, magnae, ovatae, acutae. *Flores* speciosi, albiduli vel pallide carnei, roseo-venosi. *Sepalum* posticum ovatum, acutum vel breviter acuminatum, 3–4·5 cm. longum; sepalum inferum ovatum, apice breviter bifidum, 2·5–3·5 cm. longum. *Petala* falcato-oblonga, acuta, 4–4·5 cm. longa, 1·5–1·8 cm. lata. *Labellum* subglobosum vel ovoideo-globosum, 3–4 cm. longum; ore semicirculari marginato; lobi laterales obtusanguli. *Staminodium* ovato-hastatum, acutum, 1 cm. longum.—*C. macranthum*, So mokou Zusetsu, vol. xviii. t. 83; nec Swartz. *C. macranthum*, var. β. *ventricosum*, Franch. et Sav. Enum. Pl. Jap. vol. i. (1879), p. 40, excl. syn.; Matsumura, Nomencl. Jap. Pl. p. 63; nec Reichb. f. *C. Thunbergii*, Matsumura, Index Pl. Jap. vol. ii. (1905), p. 242, pro parte; Rolfe in Orch. Rev. vol. xvi. p. 186; nec Blume.—Honzo Zufu, vol. xxxix. t. 18 (recto).—R. A. ROLFE.

The figure of the striking *Cypripedium* given in our plate has been prepared from a plant sent to Kew for identification by the establishment of Bees, Limited, with whom it flowered in June, 1910. The species is one with a somewhat interesting history. It has been in cultivation in this country for a number of years and, at all events at the time of its introduction as well as for some time thereafter, was accepted as being *C. macranthum*, no doubt owing to the fact that the figure of the plant in the Japanese work So mokou Zusetsu bears this name. It is, however, quite distinct from the original *C. macranthum*, Swartz, figured at t. 2938 of this magazine, which has flowers of a uniform deep rose-purple shade. Franchet and Savatier, fully realising this, have thought it to be the same as *C. macranthum*, var. *ventricosum*. But it is equally distinct from the plant so named by the younger Reichenbach, and Professor Matsumura on discovering this fact has concluded that it

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must be the Japanese plant described by Blume as *C. Thunbergii*, with the result that of late years this *Cypripedium* has, in all carefully determined collections, been grown under that name. But an examination of the original type of *C. Thunbergii*, Bl., for an opportunity of studying which we are indebted to the kindness of Dr. Goethart of the Leyden herbarium, shows that, of the three suggestions from time to time adopted, that of Matsumura happens to be the least satisfactory. Our plant is undoubtedly a near ally of *C. macranthum*, though it differs too greatly to admit of its being included therein; with *C. Thunbergii* its affinity is much more remote. So far as we know at present *C. macranthum* does not occur in Japan, and *C. speciosum*, which seems to be widespread in that country, may be looked upon as its representative. Besides the coloured figure given in the So mokou there is another in the older Honzo Zufu. In this latter figure, however, rose-coloured blotches are depicted on the lip; these have not been met with so far in any living specimen and would appear at least to be unusual. The cultivation of *C. speciosum* presents no great difficulty, the conditions suitable for *C. macranthum* being also suitable for our plant.

DESCRIPTION.—*Herb*; stems erect, rather stout, pubescent, leafy, 8–16 in. high. *Leaves* sessile, ovate- or elliptic-oblong, acute or shortly acuminate, ciliolate, shortly pubescent, 3–4 in. long, $\frac{3}{4}$–2 in. wide, plicate. *Bracts* leafy, large, ovate, acute. *Flowers* showy, whitish or pale flesh-coloured, veined with rose. *Sepals*: upper ovate, acute or shortly acuminate, $1\frac{1}{4}$–$1\frac{3}{4}$ in. long, lower ovate, with a shortly 2-fid tip, 1–$1\frac{1}{2}$ in. long. *Petals* falcate-oblong, acute $1\frac{1}{2}$–$1\frac{3}{4}$ in. long, $\frac{2}{3}$–$\frac{3}{4}$ in. wide. *Lip* subglobose, or ovoid-globose, $1\frac{1}{4}$–$1\frac{1}{2}$ in. long, with a semicircular mouth; lateral lobes rather bluntly angled. *Staminode* ovate-hastate, acute, 5 lin. long.

Fig. 1, section of lip; 2, column:—*both enlarged.*

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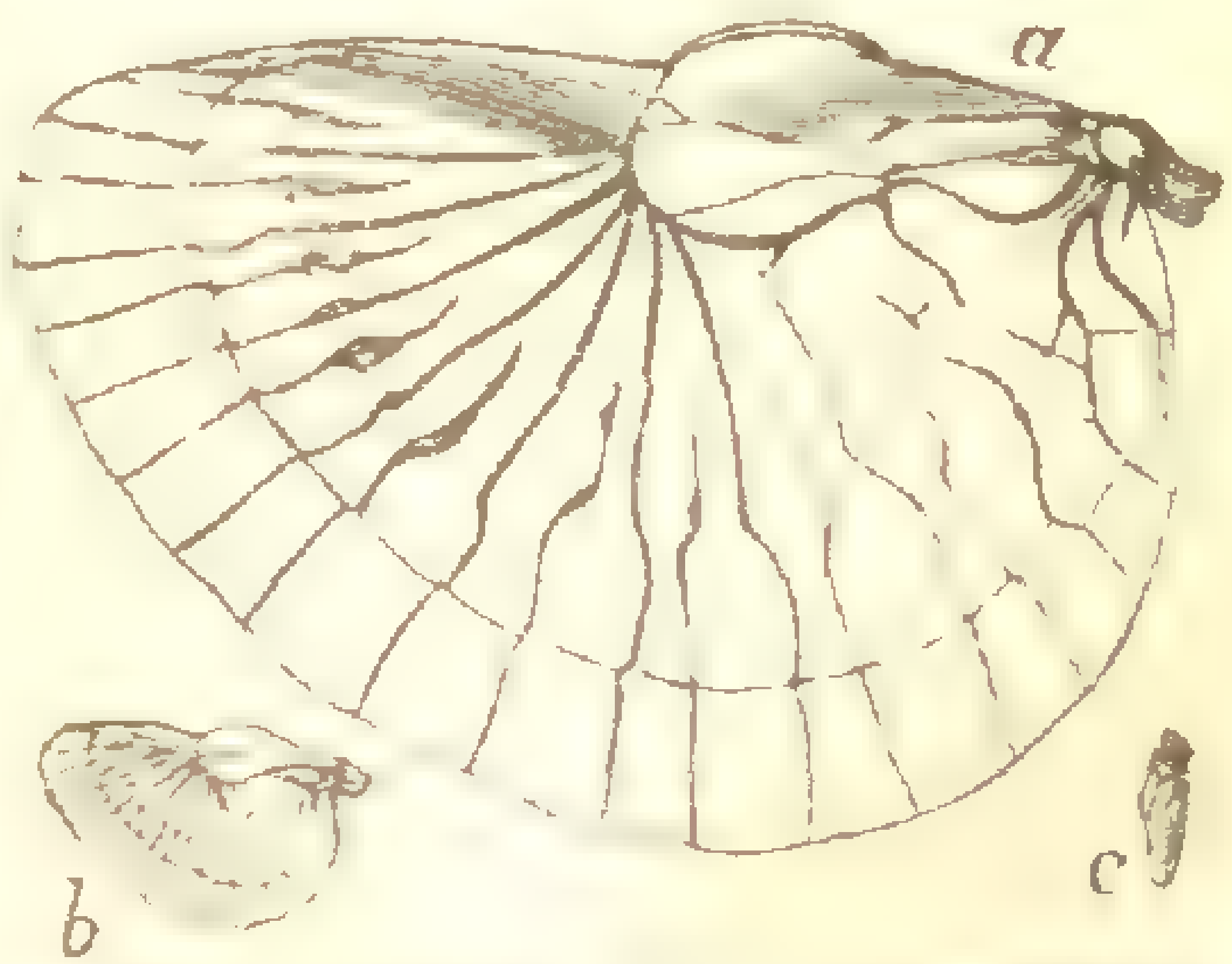
very broad, the outline being rather more than the quarter of a circle. The veins radiate from a point in the thickened part of the membrane, and the wing is packed first by being closed together like a fan and then transversely folded *in two places* (fig. 17). From this complicated double folding is derived the name of the order to which the earwigs belong, viz., EUPLEXOPTERA (εὖ, well, πλεκτὸς, folded; πτερὸν, wing.

Fig. 17.

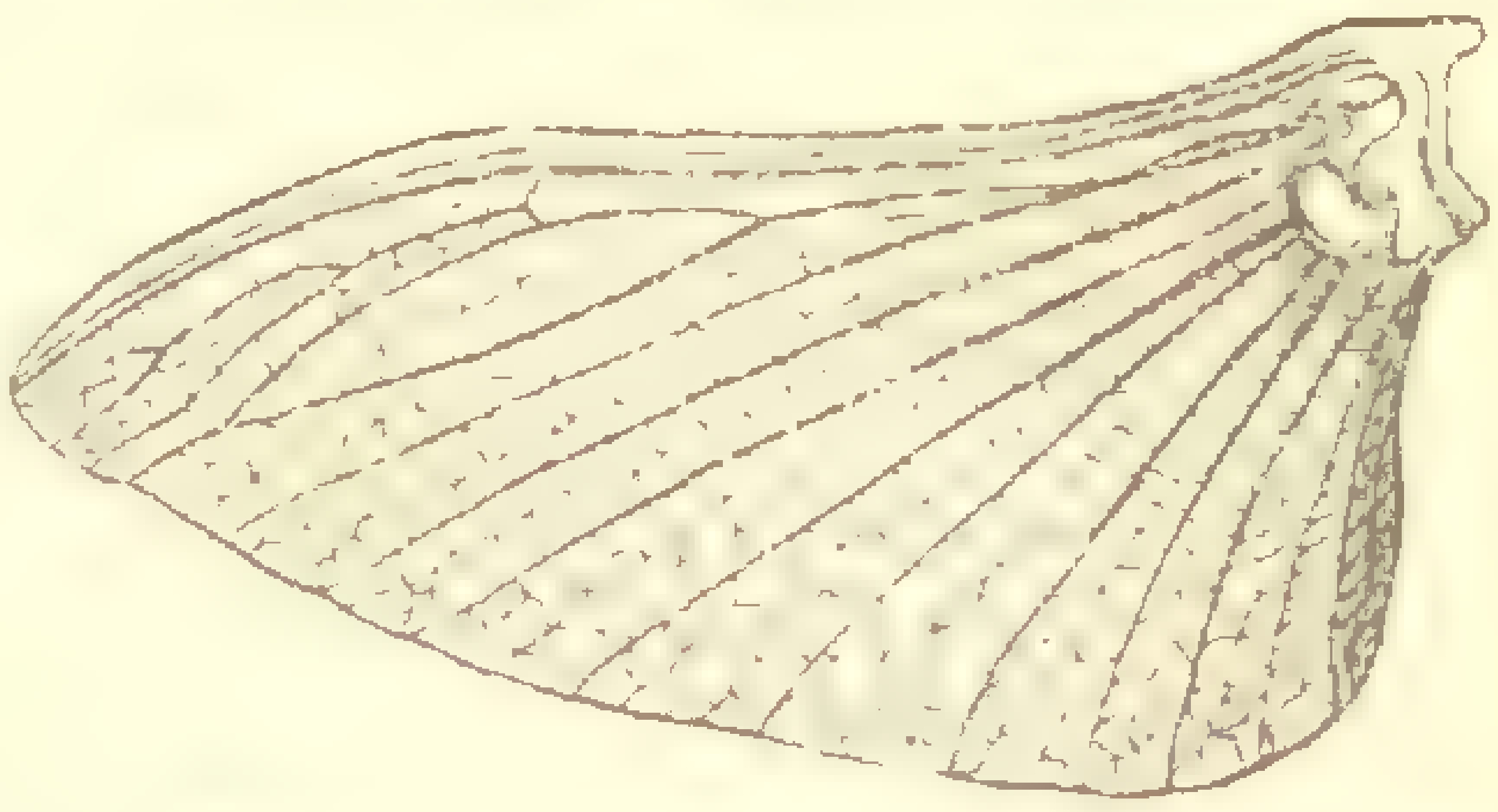


a. Wing of Earwig magnified.
b. do. do. natural size.
c. do. do. closed.

For figures of Order II., Euplexoptera, see Plate IV., fig. 1.

To the earwig, the grasshopper, cricket, locust, and cockroach (or blackbeetle of our kitchen) succeed. Resembling the earwig in the fan-like folding of the hind wing, they differ from it in having no transverse folding (fig. 18), and from this character of the wing is derived the name of the order under which these insects are ranged; namely, Orthoptera, or straight-winged (ὀρθὸς, straight; πτερὸν, a wing.) The fore wings, although much thickened, are less thick and horny than those of either the beetles or the earwig, and are useful in flight.

Fig. 18.



Wing of Grasshopper (*Acrida viridissima*).

And here we come upon a most curious little apparatus. The merry chirp of the house cricket and of the grasshopper are amongst our most familiar sounds, yet few inquire the nature of the instrument by which the little creature produces its pleasant music. This, the pri-

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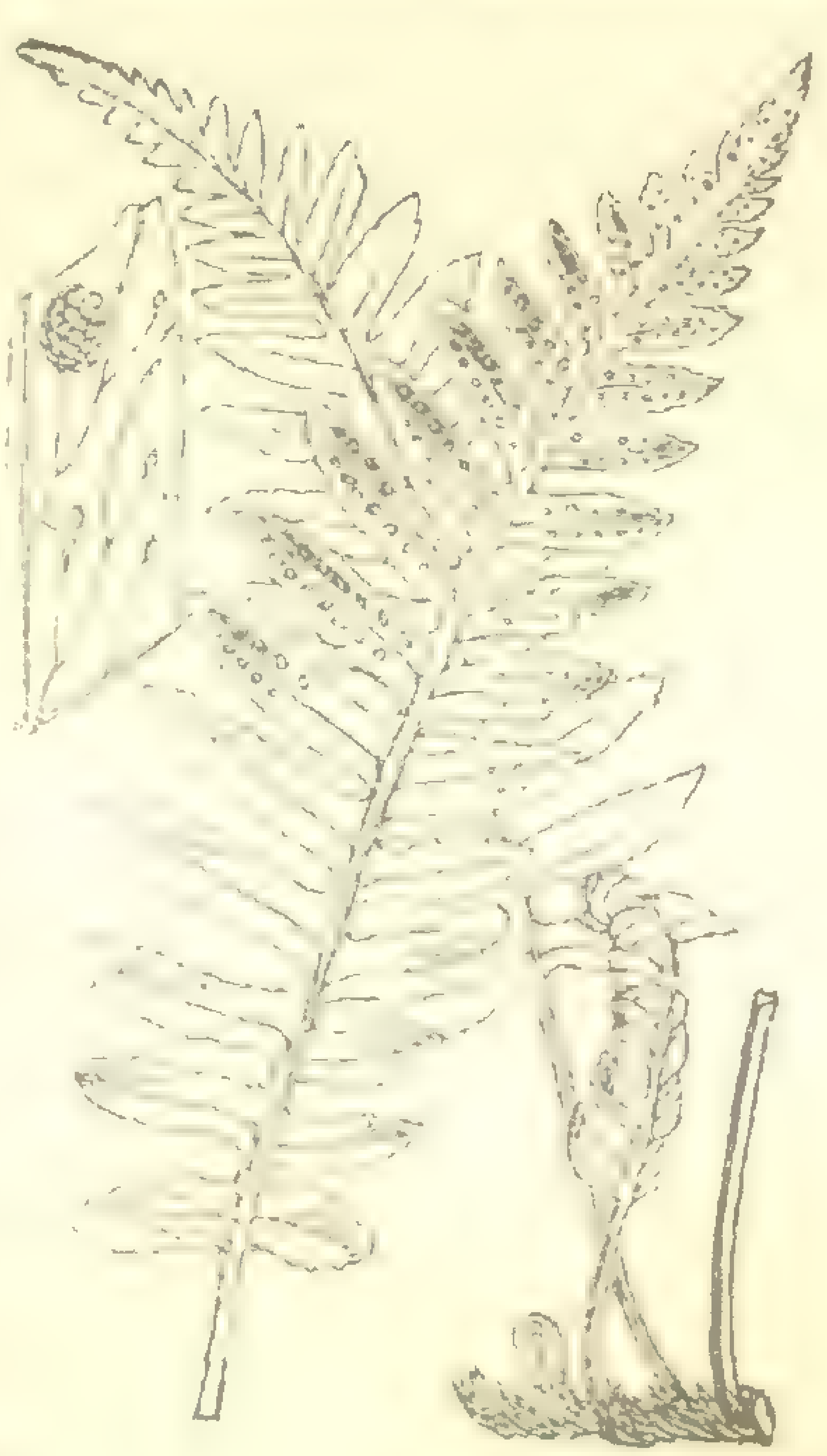
2. **Polypodium vulgare,** L. **Common Polypody.**

Caudex stout, widely creeping, scaly. Fronds ovate-oblong. Sori round, placed in a row on either side the mid-vein.

The name of this well-known fern is formed from two Greek words, *polys*, many, and *pous*, *podos*, a foot; and is applicable because of the many rootlets thrown out from the caudex.

The form of the frond is very variable,—we sometimes find it eighteen inches long, while the plants that grow on old walls have often fronds not more than three inches in length. The caudex creeps horizontally, becoming interlaced and matted when left long undisturbed, and densely clothed with narrow, glossy brown scales. The frond is pinnate, the pinnæ nearly equal, opposite, and slightly waved or jagged at the margin. Each pinna has a mid-vein, from which branches issue, and the fructification is situated at the point of the side veins.



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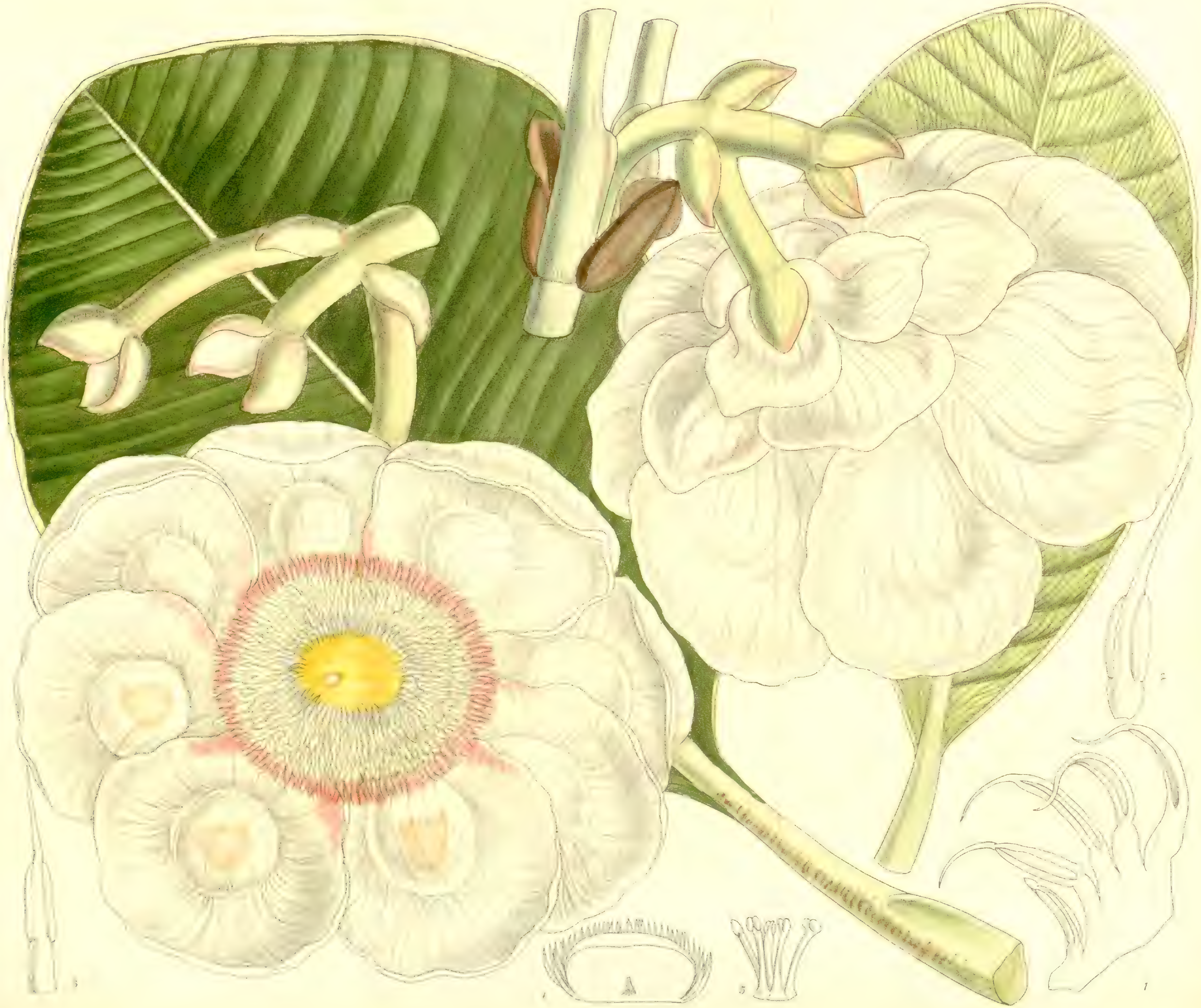

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CLUSIA GRANDIFLORA.

Guiana.

GUTTIFERAE. Tribe CLUSIEAE.

CLUSIA, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 170.

Clusia grandiflora, *Splitg. in Tijd. Nat. Gesch.* vol. ix. p. 101; *Miq. Stirp. Surinam. Select.* p. 90, tt. 25, 26; *Planch. et Triana in Ann. Sci. Nat.* sér. 4, vol. xiii. p. 325; *Engl. in Mart. Fl. Bras.* vol. xii. pars 1, p. 423; *Vesque in DC. Monogr.* vol. viii. p. 106; affinis *C. insigni*, Mart., a qua floribus majoribus, connectivo longius producto recedit.

Arbuscula dioica, 3–6 m. alta, maximis arboribus innata, truncos radicibus implicitans et eas sensim strangulando necans, succo flavescente viscoso scatens. *Rami* patuli, crassi, subangulati; ramuli circiter 1·5 cm. diametro, crassi, virides, laeves. *Folia* versus apices ramulorum conferta, opposita, petiolata, obovato vel elliptico-obovata, apice rotundata, basi obtusa vel plus minus cuneata, interdum inaequalia, 15–30 cm. longa, 7·5–15 cm. lata, coriacea, glabra, supra intense viridia nervis lateralibus inconspicuis, nervo medio utrinque valde prominente, subtus pallidiora nervis lateralibus vix visibilibus, lineis numerosissimis nigrescentibus ascendentibus notata; petioli 7–11 cm. longi, basi caulem semiamplectentes, inferne per 2–3 cm. supra applanati. *Ramuli* florentes in axillis paris supremi foliorum ramuli orti, circiter 3 cm. longi, par unicum cataphyllorum, et paria 1–3 foliorum gerentes. *Cymae* terminales, 3–2-florae; pedunculus circiter 3 cm. longus, leviter decurvatus; pedicelli 2·5–3 cm. longi; bracteae deltoideo-ovatae, circiter 1·2 cm. longae; bracteolae iis similes, obtuse carinatae, vix 1 cm. longae. *Flores masculi: Sepala* 6, alba marginibus roseo-tincta, in paria 3 disposita, exteriora et interiora antico-postica, media lateralia; sepala extima ceteris minora, late ovato-elliptica, media transverse elliptica, 1·6 cm. longa, 3·2 cm. lata, intima elliptica, 3 cm. longa, 2·5 cm. lata. *Petala* 8, alba, basin versus rosea, ambitu pyriformia, circiter 6·5 cm. longa, 5 cm. lata, medio late umbonata, umbone plano leviter elevato tantum. *Stamina* circiter 500, eburnea, irregulariter 8-seriata, exteriora majora; filamenta in cupulam circiter 4 cm. diametro 1·3 cm. altam alte connata, parte libera 1·5–2 mm. longa; antherae lateraliter dehiscentes; extimae lineares, apicem versus leviter angustatae, connectivo excluso 5 mm. longae, connectivo lato ultra loculos in appendicem subulatam 5 mm. longam producto; intimae 2·5 mm. longae, appendice 1 mm. longa. *Staminodia* numerosissima, in corpus centralem discoideum gummosum fere 2 cm. diametro 7 mm. altum conglutinata. *Flores feminei: Ovarium* subglobosum; stigmata 14–15, sessilia, radiata. *Capsula* late ovoidea, albida, post dehiscentiam depresso-globosa, 14–15-valvis. *Semina* numerosa, arillo aurantiaco inclusa.—*C. maxima*, L. C. Rich. ex Planch. et Triana, l. c. *C. rosea*, Ch. Lem. in Hortic. Univ. vol. iii. p. 33, cum ic., non Linn. *C. insignis*, Benth. in Hook. Lond. Journ. Bot. vol. ii. 1843, p. 368, non Mart. *C. petiolata*, Klotzsch ex Engl. l. c.—T. A. SPRAGUE.

The genus *Clusia* includes nearly a hundred species, natives of Tropical America and the West Indies. All

AUGUST, 1911.

appear to be dioecious; many, including the subject of our plate, are epiphytic. Though they are not parasites these epiphytic species nevertheless in time usually destroy the trees on which they grow by strangling them. *C. grandiflora*, here figured, is a native of Guiana and belongs to the group *Chlamydoclusia*, Engl., the species included in which are characterised by the peculiar structure of their male flowers, which have, within a shallow cup composed of the united filaments, a central deep yellow discoid gummy mass composed of a very large number of staminodes agglutinated together and overlaid by a layer of soft resin. The material on which our illustration has been based was derived from a plant in the Cambridge Botanic Garden which flowered in July, 1910, when specimens were forwarded for study by Mr. R. Irwin Lynch. This plant, Mr. Lynch informs us, was received at Cambridge from the gardens of the Royal Botanic Society at Regent's Park twenty-two years before. At Cambridge it has flourished in a stove in which the temperature in severe winters has been as low as 55° F.; for some seasons past it has flowered annually. The plant is now 9 feet high, and has six branches fully furnished with fine leaves, some of which are as much as 18 inches long and 7½ inches across; testimony as to its epiphytic habit is afforded by the production of numerous roots varying in thickness from that of a lead pencil to that of one's little finger. Its cultivation among other tropical plants has not given rise to any great difficulty; the best soil appears to be a mixture of fibrous peat and loam with good drainage. The pot need not be large; that used for the Cambridge plant has been a ten-inch one. The plant loves moisture both in the air and at the root; it may be propagated by cuttings, though some time is required and six months may be necessary to establish a specimen. The species is not susceptible to insect-pests.

Description.—*Shrub*, dioecious, 10–20 ft. in height, epiphytic on large trees which it embraces and ultimately strangles by means of its roots; juice yellowish, viscid; branches thick, spreading, somewhat angular; twigs about $\frac{2}{3}$ in. thick, green and smooth. *Leaves* clustered towards the end of the twigs, opposite, distinctly petioled, obovate or elliptic-obovate, apex rounded, base obtuse or somewhat cuneate, sometimes unequal, margin entire, 6–12 in. long, 3–6 in. wide, coriaceous, glabrous, dark green above with the lateral nerves obscure, paler beneath with the lateral nerves faintly visible, but marked with numerous blackish ascending lines, midrib prominent on both sides; petiole 3–4½ in. long, partially stem-clasping at the base, flattened on the upper aspect in the lower third. *Flowering twigs* appearing in the axils of the upper pair of leaves on a shoot, each over 1 in. long and each with one pair of cataphyllaries and 1–3 pairs of leaves. *Cymes* terminal, 3-2-flowered; peduncles over 1 in. long, slightly decurved; pedicels 1 in. long or rather longer; bracts deltoid-ovate, about ½ in. long; bracteoles like the bracts, obtusely keeled and rather shorter. *Male: Sepals* 6, white with rosy margins, in three pairs, the outer and inner in front and behind, the central pair lateral; outer sepals smaller than the rest, wide ovate-elliptic, central transversely elliptic, ⅔ in. long, 1¼ in. wide, inner elliptic, nearly 1¼ in. long, 1 in. wide. *Petals* 8, white, rosy towards the base, with pyriform outline, about 2½ in. long, 2 in. wide, with a wide slightly umbonate smooth centre. *Stamens* about 500, ivory white, irregularly 3-seriate, the outer larger than the others; filaments connate below in a cup about 1½ in. across and ½ in. deep, their free portions 1 lin. long or less; anthers opening laterally, those of the outer series linear, slightly narrowed upwards, about 2½ lin. long, with a broad connective which is produced as a subulate appendage as long as the anther, those of the inner series about half as long, with a very short appendage. *Staminodes* very many, agglutinate in a central discoid gummy mass about ¾ in. wide and over ¼ in. high. *Female: Ovary* subglobose; stigmas 14–15, sessile, radiate. *Capsule* broadly ovoid, white, depressed globose and 14–15-valved when it dehisces. *Seeds* many, enveloped in an orange-coloured arillus.

Fig. 1, longitudinal section through a portion of the staminal cup; 2 and 3, stamens; 4, central resinous mass enclosing the agglutinated staminodes, in vertical section and surrounded behind by the stamens of the innermost series; 5, group of staminodes from the centre of the flower:—4 *slightly, the others much enlarged.*

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M.S. del. J.N.Fitch lith.

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TAB. 8388.

TORENIA ATROPURPUREA.

Malay Peninsula.

SCROPHULARIACEAE. Tribe GRATIOLEAE.

TORENIA, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 954.

Torenia atropurpurea, *Ridl. in Journ. R. As. Soc. Straits*, 1907, no. 49, p. 21; *Gamble in Journ. As. Soc. Bengal*, vol. lxxiv. pars 2, p. 874; species calyce anguste tubuloso omnino exalato, corollae atropurpureae tubo elongato inferne angustissimo facile distinguenda.

Herba perennis caulibus gracilibus ramosis repentibus interdum radicantibus ad 6 dm. longis parcissime hirtellis. *Folia* petiolata, ovata vel deltoideo-ovata, 1·5–3·5 cm. longa, 1–2 cm. lata, acuta, basi cuneata vel interdum subtruncata, serrata, supra saepe scaberula, infra fere glaberrima; petioli circiter 5 mm. longi. *Flores* saespissime solitarii, pedunculati, caules et ramos terminantes. *Pedunculi* 1·8–2·5 cm. longi, saepe geniculati, infra medium bracteis 2 parvis linearibus instructi. *Calyx* anguste tubulosus, 1·3 cm. longus, parcissime hirtellus, omnino exalatus, obscure angulatus, alte 5-lobatus, lobi subaequales, erecti, lineari-lanceolati, circiter 1 cm. longi, basin versus 2 mm. lati, sensim acuminati. *Corolla* atropurpurea, 4 cm. longa; tubus anguste infundibularis, incurvatus, calyce multo longior, dimidio inferiore anguste cylindrico vix 2 mm. lato, dimidio superiore sensim ampliato fauce circiter 1 cm. lato; limbus patens, 2·3–2·5 cm. diametro, subaequaliter 4-lobatus, lobis passim crenulatis supero interdum emarginato. *Stamina* longiora leviter exserta, filamentis basin versus dentem brevissimum instructis, breviora vix exserta: antherae per paria cohaerentes. *Stylus* breviter exsertus. *Capsula* subellipsoidea, glabra, calyce paulum brevior.—*T. asiatica*, Prain in As. Soc. Bengal, vol. lxxii. pars 2, p. 18 *et* vol. lxxiv. pars 2, p. 354, vix Linn.—S. A. SKAN.

The pleasing *Torenia* here figured, which is striking on account of the colour of its corolla and is remarkable for the unusual length of its corolla-tube, is a native of the island of Sumatra and of the central portion of the Malay Peninsula. In Perak and Selangor, according to Mr. Ridley, it occurs, often in considerable clumps, on clay banks. A member of the section *Nortenia*, Benth., which Du Petit Thouars looked upon as a distinct genus, the plant here figured deviates considerably from the more typical members of that group in having a calyx which is faintly angled only and not winged. In this respect it approaches most closely to the well-known *T. asiatica*, Linn.,

figured at t. 4249 of this work, and when the plant was originally dealt with in the light of herbarium material, the somewhat comprehensive view of the limits of *T. asiatica* adopted by Bentham in 1846 (DC. Prodr. x. 410), and further extended by Hooker in 1884 (Fl. Brit. Ind. iv. 277), appeared to justify the inclusion of this Malayan plant in that familiar species. This view has not, however, been generally adopted. The material from which our figure and description have been prepared was obtained from a plant presented to Kew in 1909 by the late Col. Beddome, from his interesting collection of uncommon stove and greenhouse plants at Sispara, West Hill, Putney. Col. Beddome had originally obtained this plant from Sir F. Crisp, to whose collection at Friar Park, Henley, it had come, as *T. rubens*, from an Erfurt nursery. This alternative suggestion has some justification, for *T. rubens*, Benth., like *T. asiatica* and like the plant here figured, has a calyx which is keeled only and not winged. But the colour of the corolla is very different in *T. rubens*, and there appears little room for doubt that Mr. Ridley, to whom the plant now figured is familiar in a wild state, is fully justified in treating it as a distinct species. Like the other species of *Torenia* in cultivation, *T. atropurpurea* thrives well in a warm, moist house, and may be used as a basket plant or grown, where there are borders of soil, as undergrowth, since the plants readily spread over the surface and flower freely. In its coloration and in the form of its corolla *T. atropurpurea* provides a marked contrast to *T. Fournieri*, Linden, figured at t. 6747 of this work, the species that is now perhaps most frequently employed in this way; another characteristic difference will be found in the fact that the stigmatic lobes of *T. atropurpurea* are not sensitive as is the case with those of *T. Fournieri*.

DESCRIPTION.—*Herb*, perennial; stems slender, branched and prostrate, sometimes rooting at the nodes, sparingly puberulous, sometimes reaching 2 ft. in length. *Leaves* petioled, ovate or deltoid-ovate, $\frac{2}{3}$–$1\frac{1}{2}$ in. long, $\frac{1}{3}$–$\frac{3}{4}$ in. wide, acute, base cuneate or subtruncate, serrate, often scaberulous above, almost glabrous beneath; petiole 2–3 lin. long. *Flowers* usually solitary, peduncled at the ends of the stem and branches. *Peduncles* $\frac{3}{4}$–1 in. long, often geniculate, 2-bracteate below the middle; bracts small, linear. *Calyx* narrow tubular, ½ in. long, sparingly puberulous, obscurely angled but not winged, deeply 5-lobed; lobes subequal, erect, linear-lanceolate, about 5 lin. long. *Corolla* dark-purple, 1½ in. long; tube narrowly funnel-shaped, incurved, much exceeding the calyx, the lower half narrow cylindric, 1 lin. wide, the upper half gradually expanding, the throat 5 lin. across; limb spreading, about 1 in. wide, subequally 4-lobed, the lobes faintly crenulate with the uppermost sometimes emarginate. *Stamens* didynamous, the longer pair slightly exserted, their filaments shortly denticulate some distance above the base, the shorter pair hardly exserted; anthers cohering in pairs. *Style* shortly exserted. *Capsule* subellipsoid, glabrous, rather shorter than the calyx.

Fig. 1, calyx and pistil; 2, corolla-tube, laid open, showing the stamens; 3 and 4, anthers; 5, ovary and disk; 6, fruit; 7, seeds:—*all enlarged except 6, which is of natural size.*

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TAB. 8389.

LANDOLPHIA PETERSIANA.

East Africa.

APOCYNACEAE. Tribe PLUMERIOIDEAE.

LANDOLPHIA, *Beauv.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 692.

Landolphia Petersiana, *Dyer in Kew Report*, 1880, p. 42; inter species sectionis *Ancylobotrys* foliorum nervis lateralibus tantum 6–8 in utroque latere atque corollae lobis tubum excedentibus insignis.

Frutex scandens ope inflorescentiarum sensitivarum; rami novelli rufo-pubescentes vel tomentosi. *Folia* elliptica vel oblongo-elliptica, subacuta vel saepius obtusa, 8–11 cm. longa, 3–5 cm. lata, coriacea, primo utrinque laxe pubescentia, mox glabrata, nervis lateralibus utrinque 6–8 (raro 10), venarum reticulatione tenui; petiolus circa 6 mm. longus. *Panicula* longitudine varia, pedunculata, floribus numerosis sessilibus in apicibus ramorum aggregatis; rami patuli vel recurvi, tenuiter rufo-pubescentes vel glabrescentes; pedunculi 2·5–10 cm. longi, graciles; bracteae ovato-lanceolatae vel ovato-oblongae, acutae, rufo-pubescentes. *Calyx* 2 mm. longus; sepala ovato-oblonga, obtusa, rufo-pubescentes. *Corolla* alba, fragrans, 16–26 mm. longa in alabastro; tubus gracilis cylindricus, 6–9 mm. longus; lobi oblique oblongi vel lineari-oblongi, acuti vel obtusi, 12–16 mm. longi, crispo-ciliati. *Antherae* ovato-oblongae, acutae, vix 2 mm. longae. *Ovarium* globosum, minutissime rufo-tomentosum. *Stylus* cum stigmate 2 mm. longus. *Fructus* globosus, ad 6 cm. diametro, tenuiter velutinus, pericarpio coriaceo; semina 8–18 mm. longa.—Planch. Prodr. Apocyn. p. 319; Dewèvre, Caoutch. Afr. Monogr. Landolph. p. 27, partim; Jumelle, Pl. à Caoutch. et à Gutta, p. 57, partim; Warburg, Kautshukpfl. p. 118, partim; Thiselton-Dyer in Hook. Ic. Plant. t. 2756; Stapf in Thiselton-Dyer, Fl. Trop. Afr. vol. iv. p. 47. *L. scandens*, vars. *Petersiana*, *rotundifolia* et *Stuhlmanniana*, Hallier f. Kautschuklianen in Jahrb. Hamb. Wissensch. Anstalt, vol. xvii. (1890), 3 Beih. pp. 82, 83; Busse in Engl. Bot. Jahrb. vol. xxxii. (1902), pp. 169–172. *Ancylobotrys Petersiana*, Pierre in Bull. Soc. Linn. Paris, 1898, p. 91. *A. rotundifolia*, Pierre, l. c. p. 92. *Willughbeia Petersiana* et *W. senensis*, Klotzsch in Peters, Reise Mossamb. Bot. vol. i. pp. 281, 282.—O. STAPF.

The *Landolphia* here figured is widely spread throughout East Africa, where it extends from the Bahr-el-Ghazal and Mombasa through German East Africa to Nyasaland and Mozambique. As the number of names that have been applied to it indicates, the species is evidently a very variable one, and what have been taken for distinguishable forms or varieties may represent little more than individual or local states. The species, generally known in East Africa as the "Mpira," was first added to the Kew collection in

1879, when seeds were sent by Dr. (now Sir J.) Kirk from Zanzibar. In 1892 another plant was received at Kew from the Jardin des Plantes, Paris. This latter plant, which has been grown since then in the Tropical Economic House at Kew, flowered there for the first time in July, 1910, and provided the material on which our illustration has been based. The flowers are pure white and sweetly scented; the fruit, which varies in shape from globose on the Lower Zambesi to pear-shaped in German East Africa, is edible; the latex yields a rubber, but only of inferior quality. The plant thrives well under tropical conditions, and is easily propagated by means of stem-cuttings.

Description.—*Shrub*, climbing by means of the inflorescence; young twigs rusty-pubescent or tomentose. *Leaves* elliptic or oblong-elliptic, subacute or often obtuse, 3–4½ in. long, 1¼–2 in. wide, coriaceous, at first loosely pubescent on both sides, at length becoming glabrous; lateral nerves 6–8, rarely 10 on each side, reticulation fine; petiole about ¼ in. long. *Panicle* pedunculate, of varying length, bearing numerous sessile flowers clustered at the tips of its spreading or recurved, thinly rusty-pubescent or almost glabrous branchlets; peduncle 2–4 in. long, slender; bracts ovate-lanceolate or ovate-oblong, acute, rusty-pubescent. *Calyx* 1 lin. long; sepals ovate-oblong, obtuse, rusty-pubescent. *Corolla* white, fragrant, ⅔–1 in. long in bud; tube slender, cylindric, ¼–⅓ in. long; lobes oblique, oblong or linear-oblong, acute or obtuse, ½–⅔ in. long, crisply ciliate. *Anthers* ovate-oblong, acute, under 1 lin. long. *Ovary* globose, very finely rusty-tomentose. *Style* with stigma 1 lin. long. *Fruit* globose, up to 2¼ in. in diameter, sparingly velvety; pericarp coriaceous. *Seeds* ⅓–⅔ in. long.

Fig. 1, flower bud; 2, calyx in section, showing ovary; 3, corolla laid open, showing stamens; 4 and 5, stamens:—*all enlarged.*

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TAB. 8390.

MORMODES REVOLUTUM.

Peru.

ORCHIDACEAE. Tribe VANDEAE.

MORMODES, *Lindl.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 552.

Mormodes revolutum, *Rolfe in Kew Bulletin*, 1909, p. 367; a *M. specioso*, Linden, floribus immaculatis, labelli lobis lateralibus amplis obtusis et lobo intermedio fere aequalibus differt.

Herba epiphytica. *Pseudobulbi* fusiformi-oblongi, 11-13 cm. longi, vaginis membranaceis striatis imbricatis vestiti. *Folia* recurva, elongato-lanceolata, acuta vel acuminata, 3–5-nervia, plicata, subcoriacea, 15–30 cm. longa, 3–3·5 cm. lata. *Scapi* axillares, 10-17 cm. longi, basi vaginis tubulosis vestiti, multiflori. *Bracteae* ovato-oblongae, obtusae, 5–8 mm. longae. *Pedicelli* 4–5 cm. longi. *Flores* speciosi, miniati, labello flavo. *Sepala* oblongo-lanceolata, acuta vel acuminata, apice et margines subrecurva, 2·5–3·5 cm. longa; lateralia subreflexa. *Petala* erecta, oblongo-lanceolata, acuminata, apice et margine recurva, 2·5–3·5 cm. longa. *Labellum* unguiculatum, trilobum, 2–2·5 cm. longum; lobi laterales late oblongi, 5 mm. longi; lobus intermedius ovatus, acuminatus, reflexus, circiter 8 mm. longus. *Columna* oblique incurva, acuta, 1·5 cm. longa.—R. A. ROLFE.

The striking *Mormodes* here figured was introduced by Messrs. Sander & Sons, St. Albans, from Peru, where it had been obtained in the Moyobamba region by their collector, Mr. Forget. The species flowered for the first time in cultivation in July, 1909, at St. Albans, and was described from material supplied by Messrs. Sander, from whom a plant was thereafter acquired by purchase for the Kew collection. This plant, which has thriven well in an intermediate temperature, under the treatment most suitable for the allied genus *Catasetum*, flowered at Kew in January, 1910, and developed a much longer spike with a more strongly three-lobed lip than the plant on which the original description was based. The figure here published has been drawn from the plant at Kew, which flowered again in January, 1911. *M. revolutum* is allied to the Colombian *M. speciosum*, Lindl., but differs in the characters enumerated by Mr. Rolfe. Another species of similar habit is the recently described *M. Wolteriana*, Kraenzl., which however differs, according to the published account, in having the inside of the lip and parts of the column hirsute.

DESCRIPTION.—*Herb*, epiphytic; pseudobulbs fusiform-oblong, 4½–5 in. long, clothed with membranous, striate, imbricate sheaths. *Leaves* recurved, elongate-lanceolate, acute or acuminate, 3–5-nerved, plicate, firm, 6–12 in. long, 1¼–1½ in. wide. *Scapes* axillary, 4–7 in. long, clothed below with tubular sheaths, many-flowered; bracts ovate-oblong, obtuse, 2½–4 lin. long; pedicels 1½–2 in. long. *Flowers* showy, cinnabar-red with a yellow lip. *Sepals* oblong-lanceolate, acute or acuminate, somewhat recurved at the tip and edges, 1–1⅓ in. long; the later sepals somewhat reflexed. *Petals* erect, oblong-lanceolate, acuminate, the tip and edges recurved, 1–1⅓ in. long. *Lip* clawed, 3-lobed, ¾–1 in. long; lateral lobes wide oblong, 2½ lin. long; mid-lobe ovate, acuminate, reflexed, about 4 lin. long. *Column* obliquely incurved, acute, ⅔ in. long.

Fig. 1, anther cap; 2, pollinarium; 3, whole plant:—1 *and* 2 *enlarged*, 3 *reduced*.

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[illegible]

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TAB. 8391.

MUTISIA CLEMATIS.

Tropical Andes.

COMPOSITAE. Tribe MUTISIACEAE.

MUTISIA, *Linn. f.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 485.

Mutisia Clematis, *Linn. f. Suppl.* 373; *Cav. Ic.* vol. v. t. 492; *Lamk. Ill.* t. 690, fig. 1; *H. B. et K. Nov. Gen. et Sp.* vol. iv. p. 15; *Less. in Linnaea*, vol. v. p. 266; *DC. Prodr.* vol. vii. p. 5; *Gard. Chron.* 1889, vol. v. p. 501, fig. 88; species *M. grandiflorae*, Humb. et Bonpl. affinis, sed ab ea foliolis 4–5-jugis cum capitulis antherisque minoribus, et bracteis involucri interioribus plerumque obtusis differt.

Herba scandens; caulis fruticosus, sulcatus, lanato-tomentosus. *Folia* alterna, pinnata, rhachi in cirrhum producta; foliola subchartacea; 4–5-juga, breviter petiolulata, oblongo-lanceolata, apice obtusa vel subacuta, mucronata, margine integra, 1·5–4 cm. longa, 0·8–1·3 cm. lata, supra primum parce lanata, mox glabrescentia, subtus lanato-tomentosa. *Capitula* pendula, anguste oblongo-cylindrica, 6–7 cm. longa, apice circiter 6 cm. diametro. *Involucri bracteae* 4–5-seriatae, exteriores plus minusve ovato-lanceolatae, interiores lineari-oblongae, obtusae, usque ad 3·5 cm. longae, 1 cm. latae, extra tomentosae. *Flores radii* 9–10, recurvi, coccinei; corollae tubus cylindricus, 4 cm. longus, 1·25 mm. diametro, glaber; lamina ovato-elliptica, trifida, 2 cm. longa, 1 cm. lata, glabra. *Stylus* breviter exsertus. *Flores disci* numerosi; corollae tubus cylindricus, 4 cm. longus, sub anthesin paullo infra medium longitudinaliter apertus; lobi lineares, subacuti. *Antherae* circiter 1·7 cm. longae, exsertae, ad apicem extra minute puberulae. *Stylus* circiter 5 mm. exsertus, 2-lobus, lobis dorso minute puberulis. *Achaenia* oblonga, 3 mm. longa, laevia, glabra. *Pappi setae* 1-seriatae, 1·7 cm. longae, plumosae.—J. HUTCHINSON.

The genus *Mutisia* includes upwards of sixty species, all confined to the higher ranges of the Andes of tropical South America. Many of these are of considerable beauty and interest and well worthy of cultivation. As yet, however, only five or six species appear to have found their way into European gardens, and only three plates in this work, t. 2705, t. 5273 and t. 6009, have so far been given to the illustration of the genus. The species now figured, *M. Clematis*, is a native of Peru and Colombia and is the second of the group characterised by having pinnate leaves to appear in this Magazine; the pinnate-leaved form already depicted, *M. speciosa*, Ait., described under t. 2705, differs very markedly from our plant in having strongly reflexed outer involucral bracts. The nearest ally of *M. Clematis* is, however, *M. grandiflora*, Humb. et Bonpl., which has larger and fewer leaflets, larger flower heads,

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longer anthers and acutely tipped involucral bracts. Of the various species that have been brought under cultivation *M. Clematis* has proved much the easiest to manage. Thirty years ago it clothed a considerable portion of the South Octagon in the Temperate House at Kew, its shoots growing as vigorously as a *Cobaea* and providing an abundant crop of flowers every spring. The plant from which the material used for our illustration was derived grows against a pillar in the Himalayan section of the same house, where it flowers freely in May. Evergreen in habit, it has the disadvantage of presenting a somewhat unprepossessing appearance in winter, owing to its foliage and young shoots suffering to some extent, but by the removal of all weak growth early in the year the plant very soon comes into condition again. It can be propagated from cuttings formed of half-ripened shoots, as well as from seeds.

DESCRIPTION.—*Herb*, climbing; stem rather woody, grooved, woolly pubescent. *Leaves* alternate, pinnate, their rachises produced into tendrils; leaflets firm, 4–5-paired, shortly stalked, oblong-lanceolate, obtuse or subacute, mucronate, entire, $\frac{2}{3}$–$1\frac{1}{2}$ in. long, $\frac{1}{3}$–$\frac{1}{2}$ in. wide, at first sparingly woolly above, soon almost glabrous, underneath woolly-pubescent. *Heads* pendulous, narrowly oblong-cylindric, $2\frac{1}{2}$–$2\frac{3}{4}$ in. long, about $2\frac{1}{2}$ in. across at the top. *Bracts* of the involucre 4–5-seriate, the outer more or less ovate-lanceolate, the inner linear-oblong, obtuse, the largest $1\frac{1}{2}$ in. long, 5 lin. wide, tomentose outside. *Ray-florets* 9–10, recurved, bright red; corolla-tube cylindric, $1\frac{1}{2}$ in. long, under 1 lin. wide, glabrous; ray ovate-elliptic, 3-fid, $\frac{3}{4}$ in. long, 5 lin. wide, glabrous. *Style* slightly exserted. *Disk-florets* numerous; corolla-tube cylindric, $1\frac{1}{2}$ in. long, when open longitudinally split rather below the middle; lobes linear, subacute. *Anthers* about $\frac{2}{3}$ in. long, exserted, finely puberulous at the tip on the outer side. *Style* distinctly exserted, 2-lobed, lobes finely puberulous on the back. *Achenes* oblong, $1\frac{1}{2}$ lin. long, smooth, glabrous. *Pappus* 1-seriate, the setae plumose, $\frac{2}{3}$ in. long.

Fig. 1, part of a leaf showing the mucronate tip; 2 flower of the ray; 3, a pappus-seta; 4, flower of the disk; 5, anther; 6, style-arms:—*all enlarged.*

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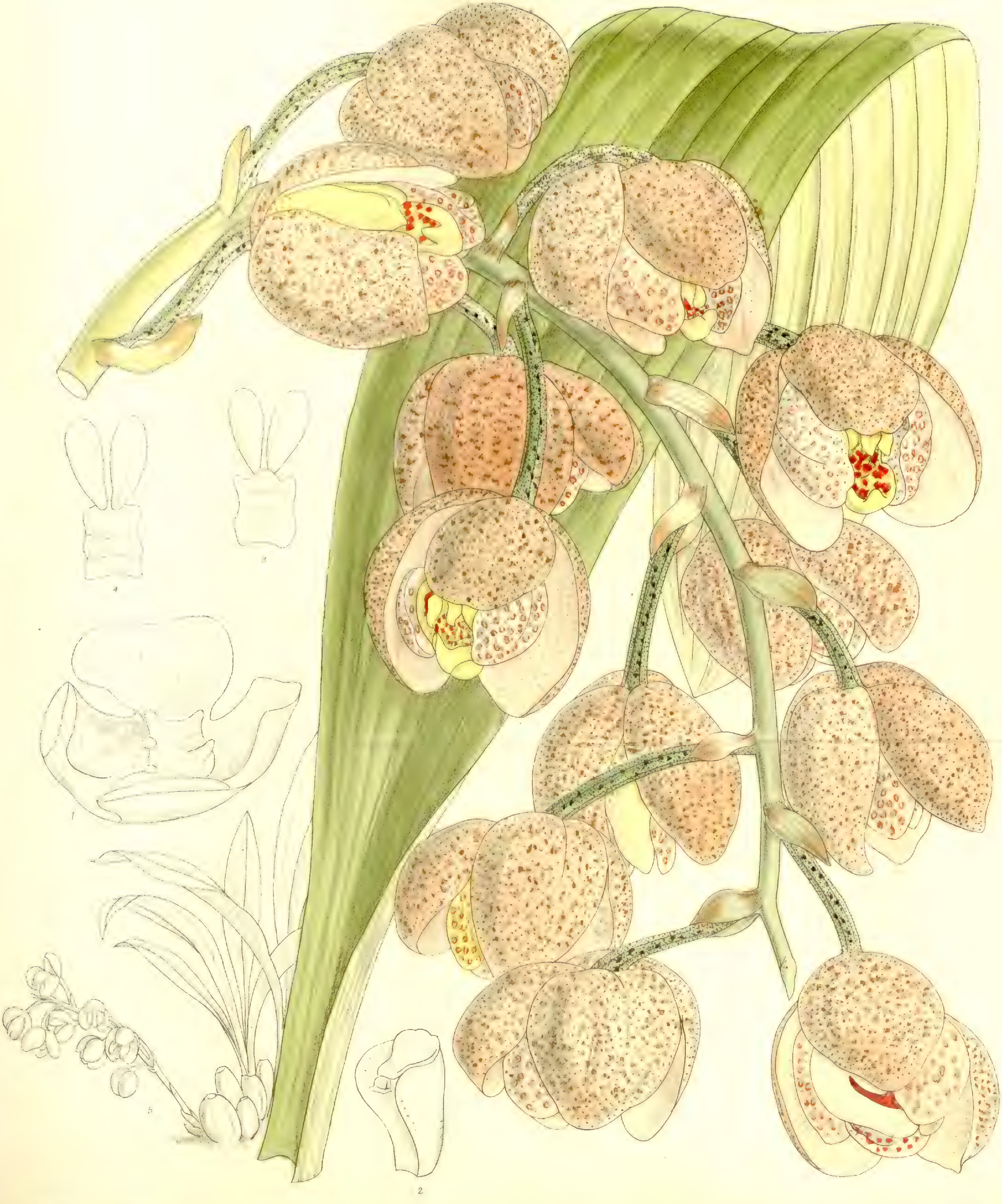

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TAB. 8392.

ACINETA MOOREI.

South America.

ORCHIDACEAE. Tribe VANDEAE.

ACINETA, *Lindl.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 551.

Acineta Moorei, *Rolfe*; species *A. Hrubyanae*, Reichb. f., affinis sed floribus crebre maculatis labellique lobis lateralibus distincte latioribus differt.

Herba epiphytica; pseudobulbi conferti, ovoideo-oblongi, sulcati, crassi, 7–10 cm. longi, apice triphylli. *Folia* petiolata, lanceolato-oblonga, breviter acuminata, plicata, subcoriacea, 30–40 cm. longa, 5–6 cm. lata. *Scapi* penduli, multiflori, circiter 30 cm. longi, vaginis tubulosis amplis vestiti; bracteae patentes, elliptico-oblongae, obtusae, valde concavae, 1·5–1·8 cm. longae; pedicelli 4–5 cm. longi, scabridi vel papillis nigris crebre aspersi. *Flores* speciosi, subglobosi, straminei, crebre brunneo-punctulati. *Sepalum* posticum suborbiculare, obtusum, valde concavum, 3–3·5 cm. longum; sepala lateralia late et oblique ovato-orbicularia, obtusa, concava, 3·5–4 cm. longa. *Petala* late elliptica, obtusa, subconcava, 3 cm. longa. *Labellum* rigide carnosum, cum basi columnae continuum, 3-lobum, 4 cm. longum; unguis latus, concavus, 2 cm. longus; lobi laterales oblique reniformes, truncati, 1·5 cm. lati; lobus intermedius oblongus, apice contractus et subobtusus, concavus, 1·5 cm. longus; discus crasse calloso-appendiculatus; callus late oblongus, basi et apice breviter bilobus. *Columna* clavata, 2 cm. longa, basi parce pubescens, apice late alata; pollinia 2, cerea, pyriformi-oblonga, in glandulam dilatatam affixa.—R. A. ROLFE.

Three species of *Acineta* have already been figured in this work, viz.:—*A. Barkeri*, Lindl., as a *Peristeria*, t. 4203; *A. superba*, Reichb. f. (A. Humboldtii, *Lindl.*), also as a *Peristeria*, t. 4156; and *A. densa*, Lindl., t. 7143. Most of the species have flowers of a yellow ground colour, but Reichenbach has described as *A. Hrubyana*, Reichb. f., one with flowers of a whitish ground colour and very few spots. To *A. Hrubyana*, which is rare in collections, our plant is closely allied; it is readily distinguished by the flowers being more copiously marked with reddish brown spots, and differs considerably in the structure of the lip. Our plant was purchased at Bruges, from Messrs. Sander & Sons, for the Royal Botanic Garden, Glasnevin, in 1903, as a distinct but unnamed species. It grew well, Sir F. W. Moore informs us, in a mixture of Osmunda fibre, good peat, and charcoal in a basket suspended from the roof of

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an intermediate orchid house with a minimum night temperature of 55° F., and flowered for the first time in July 1905. Flowers and photographs submitted to Kew indicated that the plant was new to science, but fuller material was desirable. With some of the Acinetas the act of flowering, at least when under cultivation, has an exhausting effect. This species has been no exception to this rule, and it was not until July 1909 that it flowered again. From the material then supplied our figure and a diagnosis of the species have been prepared. Though smaller than most of the known species, and though somewhat less vigorous than these in growth, *A. Moorei* does not deserve to be spoken of as delicate. It thrives well under the conditions already mentioned, but requires rest when a season's growth is finished.

Description.—*Herb*; epiphytic; pseudobulbs clustered, ovoid-oblong, stout, sulcate, 3–4 in. long, 3-phyllous. *Leaves* petioled, lanceolate-oblong, shortly acuminate, plicate, almost leathery, 12–16 in. long, 2–$2\frac{1}{4}$ in. wide. *Scapes* pendulous, many-flowered, about a foot in length, clothed with wide tubular sheaths; bracts spreading, elliptic-oblong, obtuse, very concave, $\frac{2}{3}$–$\frac{3}{4}$ in. long; pedicels $1\frac{3}{4}$–2 in. long, scabrid or closely beset with black papillae. *Flowers* showy, subglobose, straw-coloured, closely punctulate with brown spots. *Sepals*: posterior suborbicular, obtuse, very concave, $1\frac{1}{4}$–$1\frac{1}{2}$ in. long; lateral widely and obliquely ovate-orbicular, obtuse, concave, $1\frac{1}{3}$–$1\frac{1}{2}$ in. long. *Petals* wide elliptic, obtuse, slightly concave, $1\frac{1}{4}$ in. long. *Lip* firmly fleshy, continuous with the base of the column, 3-lobed, $1\frac{1}{2}$ in. long; claw wide, concave, $\frac{3}{4}$ in. long; lateral lobes obliquely reniform, truncate, $\frac{2}{3}$ in. long, mid-lobe oblong, narrowed and somewhat blunt at the tip, concave, $\frac{2}{3}$ in. long; disk thickly callose-appendiculate, the swelling wide oblong, slightly 2-lobed at apex and base. *Column* clavate, $\frac{3}{4}$ in. long, slightly pubescent at the base, widely winged at the apex; pollinia 2, waxy, oblong-pyriform, adnate to a dilated gland.

Fig. 1, lip with one side-lobe removed; 2, column; 3 and 4, pollinarium, seen from behind and in front; 5, whole plant, from a photograph, the scape supported:—1–4 *enlarged*, 5 *reduced*.

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TAB. 8393.

VIBURNUM HENRYI.

China.

CAPRIFOLIACEAE. Tribe SAMBUCEAE.

VIBURNUM, *Linn. f.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 3.

Viburnum (Microtinus) Henryi, *Hemsl. in Journ. Linn. Soc.* vol. xxiii. p. 353; *Gard. Chron.* 1910, vol. xlviii. p. 265 cum fig.; inter species sinenses affines foliis lanceolatis glabris subtus in axillis venarum primariarum glandulosis et inflorescentia pyramidali distincta.

Frutex ornatus usque ad 3–4 m. altus vel interdum supra rupes vagans (teste Henry), sempervirens, praeter perulas fere undique glaber, ramulis floriferis teretibus graciliusculis, internodiis quam foliis brevioribus. *Folia* opposita, petiolata, coriacea, oblonga, ovato-oblonga vel lanceolata, interdum anguste lanceolata, absque petiolo usque 15 cm. longa sed saepius 5–10 cm. longa, utrinque attenuata vel basi plus minusve rotundata, calloso-denticulata, margine interdum rubescentia, glabra vel rarius subtus praecipue secus venas primarias pilis stellatis parcissime instructa, subtus in axillis venarum primariarum glandulosa, glandulis immersis; venae primariae utrinque 5–7, sat conspicuae; petiolus 1–3 cm. longus, sursum leviter dilatatus, subalatus. *Flores* inter minores, pallide lutei vel flavo-virentes, cymoso-paniculati, brevissime pedicellati; paniculae terminales, pyramidales, 5–10 cm. longae, ramulis rubris, bracteatae bracteis linearibus cito deciduis inferioribus 2–3 mm. longis. *Calyx* brevissimus, inaequaliter 5-dentatus, dentibus rotundatis. *Corolla* breviter campanulata, 6–7 mm. diametro, lobis rotundatis obscure denticulatis. *Stamina* quam corollae lobi breviora. *Ovarium* 1-loculare, 1-ovulatum. *Drupa* rubra, fere sanguinea, demum nigrescens, ovoidea, circiter 1 cm. longa.—W. BOTTING HEMSLEY.

The *Viburnum* which is the subject of our illustration is a Chinese species which was originally described from specimens collected in the Patung district of Hupeh in Central China by Mr. A. Henry, by whom the plant was subsequently met with in Szechuan. The plant from which our plate has been prepared was introduced to cultivation in 1901 by Mr. E. H. Wilson for Messrs. J. Veitch & Son, in whose nursery at Coombe Wood it has since been grown without any protection. It is, from the horticultural standpoint, distinct and striking on account of its paniculate inflorescence as contrasted with the flat corymbs of most of the species of *Viburnum* in our gardens. Its value as a shrub in collections is further enhanced by its evergreen habit, a character which is not common among

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hardy species. The beauty of *V. Henryi* is, however, greatest in September, when the fruits are of a beautiful coral-red and are only beginning to turn black. In habit it is somewhat stiff and rather sparingly furnished with leaves. It is easily propagated by means of cuttings made of fairly ripened wood and placed in gentle heat. Like most of the species of the genus it prefers a cool, moist, loamy soil.

DESCRIPTION.—*Shrub*, showy when in fruit, sometimes erect and stiff, 10–14 ft. high, sometimes, according to Henry, in a wild state clambering on rocks, evergreen, nearly glabrous everywhere except on the bud scales; flowering twigs terete, rather slender; internodes shorter than the leaves. *Leaves* opposite, petioled, coriaceous, oblong or ovate-oblong or lanceolate, sometimes narrowly lanceolate, up to 6 in. long, but usually 2–4 in. long, narrowed to both extremities or more or less rounded at the base, callous-toothed and sometimes reddish along the margin, glabrous or very sparingly stellate-pubescent on the main-nerves beneath, and there with sunken glands at the junction of the nerves and midrib; main nerves 5–7 on each side, rather prominent; petiole $\frac{1}{3}$–$1\frac{1}{4}$ in. long, slightly widened upwards and faintly winged. *Flowers* small, pale yellow or greenish yellow, cymosely paniculate, very shortly pedicelled; panicles terminal, pyramidal, 2–4 in. long, their twigs red, bracteate; bracts linear, very soon deciduous, the lowest 1–$1\frac{1}{2}$ lin. long. *Calyx* very short, unequally 5-toothed; teeth rounded. *Corolla* shortly campanulate, 3–$3\frac{1}{2}$ lin. across; lobes rounded, faintly denticulate. *Stamens* shorter than the corolla lobes. *Ovary* 1-locular, 1-ovuled. *Drupe* coral red, deepening as it ripens, at length almost black, 4–5 lin. long.

Fig. 1, portion of under side of leaf, showing glands; 2, a flower-bud; 3, an expanded flower; 4, calyx and pistil; 5, stamen in bud; 6, stamen from an expanded flower; 7, a drupe:—*all enlarged.*

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TAB. 8394.

SENECIO SAXIFRAGOIDES.

New Zealand.

COMPOSITAE. Tribe SENECIONIDEAE.

SENECIO, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 446.

Senecio saxifragoides, *Hook. f. Fl. N. Zel.* i. 144; *Cheeseman Man. N. Zel. Fl.* 372; affinis *S. lagopo*, Raoul, sed robustior; foliis majoribus crassioribus magis villosis differt.

Herba perennis; rhizoma robustum, apice dense et longe lanatum. *Folia* radicalia, petiolata, late oblongo-elliptica vel suborbicularia, apice rotundata, basi paullo cordata, 8-12 cm. longa, 4·5-10 cm. lata, coriacea, margine undulata, denticulata, supra laxe et appresse villosa, demum fere glabra, prope marginem longe setosa, subtus incano-lanata, nervis lateralibus utrinque 7-9 basi patulis apicem versus subarcuatis distinctis; petioli robusti, usque ad 7 cm. longi, cum costa incano-lanati et purpureo-setosi. *Scapi* ad 30 cm. longi, ramosi, villis albis et setis purpureis instructi; bracteae spathulatae vel lineares, ad 3 cm. longae; pedunculi 1·5-3·5 cm. longi. *Capitula* subcorymbosa, 4 cm. diametro, flava. *Involucri bracteae* anguste lanceolatae, subacutae, vix 1 cm. longae, extra villosae. *Flores radii* 18-20; corollae tubus cylindricus, 2·5 mm. longus, glaber; limbus oblanceolatus, apice tridentatus, 1·2 cm. longus, 4 mm. latus, 4-nervis, glaber; achaenia cylindrica, glaber, pappi setae barbellatae, 3·5 mm. longae. *Flores disci* numerosi; corollae tubus 4 mm. longus, infra medium constrictus, supra medium ampliatus, glaber; lobi ovato-lanceolati, subacuti, 1 mm. longi, 0·5 mm. lati, glabri; antherae obtusae, 2·5 mm. longae; pappus et achaenia ut in floribus radii; styli rami 1 mm. longi.—J. HUTCHINSON.

The genus *Senecio* is represented in New Zealand by about thirty species, all of them endemic except one, *S. lautus*, Forst., which is widely spread in Australia and Tasmania. The New Zealand species constitute two natural groups, one composed of herbaceous perennials, the other of shrubs or small trees. The species of the shrubby group are very distinct and easily separated; those of the herbaceous section, to which the subject of our plate belongs, are somewhat variable and difficult to discriminate. Our plant, *S. saxifragoides*, is most closely allied to *S. lagopus*, Raoul, but is of stouter habit, with larger and thicker leaves, more densely villous on the upper surface. The specimen from which the material of our figure was obtained is one of a collection of New Zealand plants brought together by

Mr. H. H. Travers and disposed of by auction at the rooms of Messrs Protheroe and Morris in 1908. It was planted, along with various species of *Olearia*, in an unheated frame, where it grew well and flowered freely in the summer of 1910. It may prove to be hardy in England, and if so, should be a most useful plant for the rock garden, being a perennial and evergreen with handsome foliage, and forming, when in flower, a strikingly beautiful object.

Description.—*Herb*, perennial; rootstock stout, with a densely woolly crown. *Leaves* radical, petioled, wide oblong-elliptic or nearly orbicular, rounded at the apex, slightly cordate at the base, 3–5 in. long, $1\frac{3}{4}$–4 in. wide, coriaceous, margin waxy, denticulate, laxly and adpressed villous, but soon almost glabrous above, distinctly setose near the magin, hoary-woolly beneath; lateral nerves 7–9 on each side, spreading at the base, somewhat incurved towards the apex; petiole stout, up to $2\frac{3}{4}$ in. long, hoary-woolly and purplish setose like the midrib. *Scapes* up to 1 ft. high, branched, clothed with white hairs and purple setae; bracts spathulate or linear, over 1 in. long; peduncles $\frac{2}{3}$–$1\frac{1}{3}$ in. long. *Heads* almost corymbose, $1\frac{1}{2}$ in. across, yellow. *Involucral bracts* narrow lanceolate, subacute, about $\frac{1}{3}$ in. long, villous outside. *Ray-florets* 18–20; corolla-tube cylindric, over 1 lin. long, glabrous; limb oblanceolate, 3-dentate at the tip, $\frac{1}{2}$ in. long, 2 lin. wide, 4-nerved, glabrous; achenes cylindric, glabrous; pappus setae barbellate, nearly 2 lin. long. *Disk-florets* numerous; corolla-tube 2 lin. long, narrowed below the middle, widened above the middle, glabrous; lobes ovate-lanceolate, subacute, very small, glabrous; anthers obtuse, over 1 lin. long; pappus setae and achenes as in the ray-florets; style-arms $\frac{1}{2}$ lin. long.

Fig. 1, portion of a leaf showing the setae near the edge; 2, an involucral bract; 3, ray-floret; 4, disk-floret; 5, pappus seta; 6, anthers; 7, style-arms; 8, an entire plant, showing habit:—*all enlarged except* 8, *which is much reduced.*

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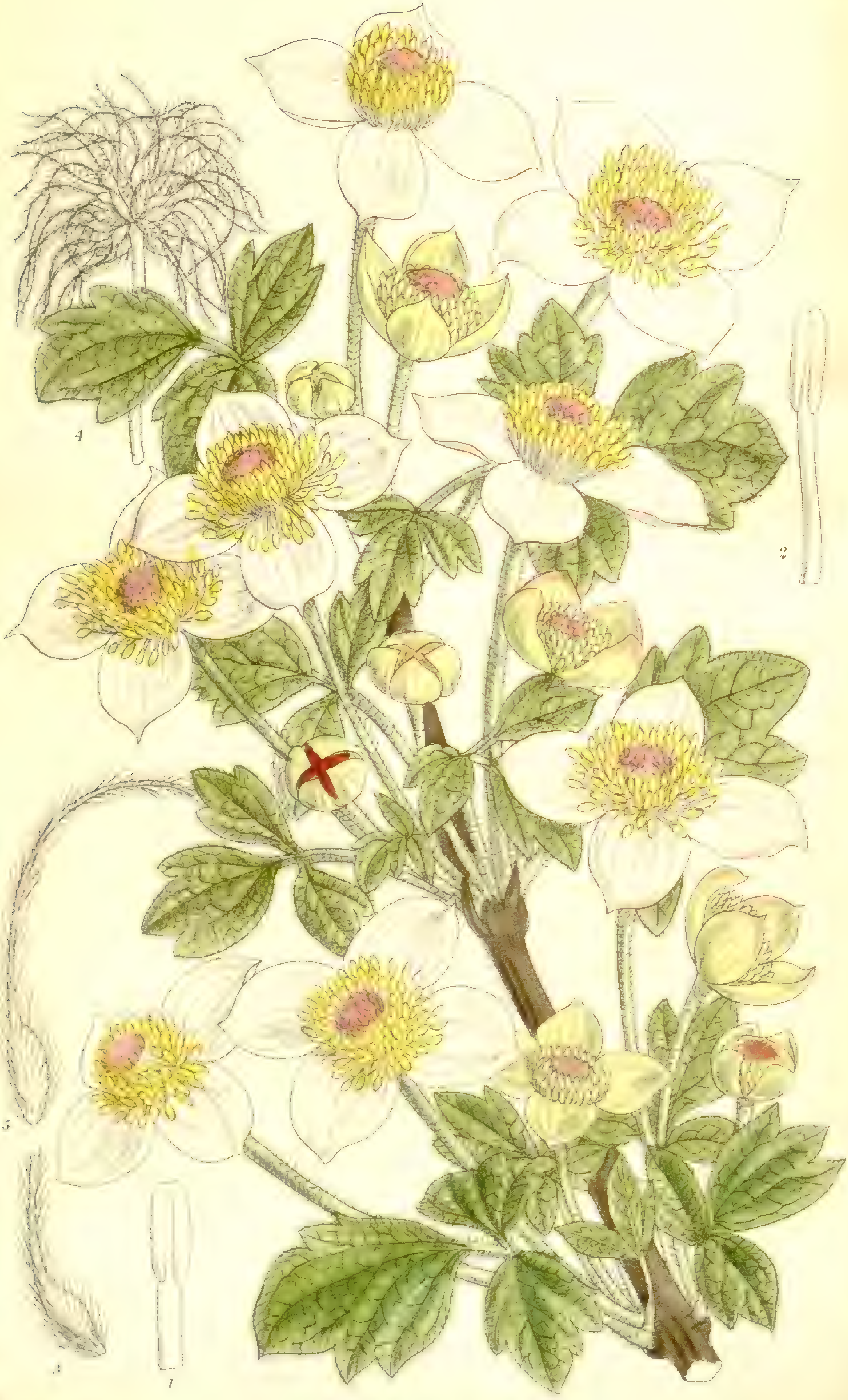

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TAB. 8395.

CLEMATIS CHRYSOCOMA.

China.

RANUNCULACEAE. Tribe CLEMATIDEAE.

CLEMATIS, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 3.

Clematis chrysocoma, *Franch. in Bull. Soc. Bot. France*, vol. xxxiii. p. 362; *Finet & Gagnep. Contrib. Fl. As. Or.* i. 10; affinis *C. montanae*, Ham., a qua indumento grossiore densiore recedit.

Fruticulus humilis ramis erectis vel decumbentibus pallide brunneis sparse pilosis. *Folia* trifoliolata; petiolus 2·5–7 cm. longus, dense pilosus; foliola petiolulata, ambitu elliptico-obovata, grosse 3–5-dentata, subtus dense subsericeo-pilosa, pilis exsiccando aureis, supra sparsius pilosa, terminalia conspicue petiolulata, 2–4 cm. longa, 1·5–3·5 cm. lata, lateralia breviter petiolulata, minora. *Flores* solitarii bini vel terni, e ramulis valde abbreviatis foliatis orti. *Pedunculi* 4–7 cm. longi, crassiusculi, dense pilosi, sursum incrassati. *Sepala* 4, patentia, obovato-elliptica, apiculata, 1·8 cm. longa, 1·2 cm. lata, alba margine roseo, supra glabra, subtus sericeo-pubescentia. *Petala* nulla. *Stamina* numerosa; filamenta applanata, linearia vel oblongo-linearia; antherae oblongae vel oblongo-lineares, deorsum leviter angustatae, 3–3·5 mm. longae. *Pistilla* numerosa, congesta, dense villosa, apicibus stylorum purpureo-brunneorum exceptis. *Achaenia* compressa, pilosa, stylis longis plumosis.—T. A. SPRAGUE.

The *Clematis* here figured is a Chinese plant which approaches very closely to the Eastern Himalayan form treated by Mr. Brühl as a variety, var. *chumbica*, of *C. montana*, Ham.; it differs chiefly from the Chumbi Valley plant in its coarser indumentum, and it is possible that the two may not be specifically distinct. But until a revision of the numerous varieties of *C. montana* recognised by Brühl has been effected it is desirable to maintain *C. chrysocoma* as a separate species. The plant which has supplied the material for our figure was presented to the Kew collection by Mr. M. L. de Vilmorin in the spring of 1910. It grew very well during the summer and flowered abundantly from the old wood. Unfortunately, it does not promise to be very hardy, and at the first frost died down to the woody base, so that it was necessary to take up the plant and house it during the winter. The plant is easily propagated by cuttings made of nearly ripened wood.

SEPTEMBER, 1911.

DESCRIPTION.—*Shrub*, of low stature, with erect or decumbent, pale brown, sparingly hairy branches. *Leaves* 3-foliolate; petiole 1–2¾ in. long, densely pilose; leaflets stalked, elliptic-obovate, coarsely 3–5-toothed, densely almost silky hairy beneath, sparingly hairy above, the terminal leaflet more distinctly stalked, ¾–1½ in. long, ⅔–1¼ in. wide, the lateral leaflets smaller and more shortly stalked. *Flowers* solitary or 2–3, on very short leafy twigs. *Peduncles* 1½–2¾ in. long, rather stout, densely hairy, thickened upwards. *Sepals* 4, spreading, obovate-elliptic, apiculate, ¾ in. long, ½ in. wide, white with a rosy margin, glabrous within, silky-pubescent outside. *Petals* 0. *Stamens* numerous; filaments flattened, linear or linear-oblong; anthers oblong or oblong-linear, slightly narrowed downwards, 1½–2 lin. long. *Pistils* numerous, crowded, densely villous except at the tips of the brownish-purple styles. *Achenes* compressed, hairy; styles long, plumose.

Figs. 1 and 2, stamens; 3, pistil; 4, head of achenes; 5, a single achene:—*all enlarged except 4, which is of natural size.*

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[illegible]

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TAB. 8396.

IMPATIENS HERZOGII.

German New Guinea.

BALSAMINACEAE.

IMPATIENS, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 277.

Impatiens Herzogii, *K. Schum. in Engl. Bot. Jahrb.* vol. ix. p. 204; species *I. Hawkeri,* Bull, affinis; differt glabritia, ramulis tetragonis glandulis interpetiolaribus minutis, colore florum, vexillo apice truncato intruso, alarumque lobis breviter 2-lobis.

Herba robusta, ramosa, glaberrima, grandiflora, ramis patulis ramulisque tetragonis viridibus. *Folia* 6–14 cm. longa, inferiora opposita, superiora 5–7-natim verticillata, petiolata, firma, ovata ovato-oblonga vel ovato-lanceolata, utrinque acuminata, serrulata, basin versus saepe longe ciliata, subtus pallida, nervis utrinque 8–10; petiolus 2–5 cm. longus; glandulae basi petiolorum subulatae, herbaceae, virides. *Inflorescentia* simpliciter pedicellata; pedicelli solitarii vel fasciculati, 4–6 cm. longi, graciles, erecti. *Flores* 4–6 cm. expansi, colore miniacei. *Sepala* 2, ovato-lanceolata, acuminata, 1·5–2 cm. longa, pallide viridia. *Vexillum* 2–3 cm. latum, ovato-rotundatum vel cuneatum, margine superiore truncato medio paullo intruso in sinu apiculato; costa dorso ala prominente carinave angusta viride instructa. *Alae* sessiles vexillo triente longiores; lobi basi liberi, basales 2–2·5 cm. longus, obovato-oblongus, 2-lobus, basi acutus; distalis 2·5–3·5 cm. longus, obcordatus, basi longe attenuatim stipitatus; auricula dorsalis 0. *Labelli* limbus cymbiformis, acuminatus, ad 1 cm. longus; calcar 5–7 cm. longum, gracillimum, incurvum, rubrum. *Filamenta* brevia, late subulata; antherae orbiculares, rubro-purpureae.—J. D. HOOKER.

The *Impatiens* which forms the subject of our illustration is a native of New Guinea. The plant from which the material for this figure has been derived was raised at Kew from a cutting sent from the Royal Botanic Garden, Glasnevin, and raised there, so Sir F. W. Moore informs us, from seeds sent by Dr. R. Schlechter from German New Guinea. It has proved a freely growing, freely flowering species, amenable to very varied cultural conditions. It has survived the winter and flowered well in the cool moisture of an Odontoglossum house, with a night temperature of 50° F.; in the dry atmosphere of a Cactus house; and in a bright stove pit with a night temperature of 65° F. But of these three conditions that most suitable is clearly the last mentioned; the plant grows more freely, flowers more profusely and is of a decidedly brighter colour when grown in a stove pit. It requires a rich soil and can be readily propagated by cuttings. The nearest ally of *I. Herzogii* is

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I. Hawkeri, Bull, figured at t. 8247 of this work, which is also a native of New Guinea. They may in most cases be readily distinguished by the fact that *I. Hawkeri* is partially hairy and has dark red flowers, whereas *I. Herzogii* is perfectly glabrous and has vermilion-coloured flowers. But while it is thus easy and, from the horticultural standpoint, convenient to keep them apart, Sir Joseph Hooker points out that, having regard to the conformity of the two in all essential respects and to the circumstance that they are natives of the same country, there is little room for doubt that they are forms of the same species. This conclusion is supported by the fact that in the Kew Herbarium there are two authentically named specimens of *I. Herzogii* received from the Berlin Herbarium, one collected in Kaiser Wilhelmsland by Mr. Hollrung, the other obtained in New Guinea by Mr. Lauterbach, in both of which the branches are glandular pubescent.

DESCRIPTION.—*Herb*; stout, branching, branches and twigs 4-angled, quite glabrous, spreading. *Leaves* $2\frac{1}{2}$–$5\frac{1}{2}$ in. long, opposite low down, in whorls of 5–7 higher up, petioled, firm, ovate or ovate-oblong or ovate-lanceolate, acuminate, narrowed to the base, serrulate and often long ciliate towards the base, bright green above, pale beneath, with 8–10 nerves on each side; petiole $\frac{3}{4}$–2 in. long; glands at the base of the petiole subulate, herbaceous, green. *Inflorescence* simply pedicelled; pedicels solitary or clustered, $1\frac{1}{2}$–$2\frac{1}{4}$ in. long, slender, erect. *Flowers* showy, $1\frac{1}{2}$–$2\frac{1}{4}$ in. across. *Sepals* 2, ovate-lanceolate, acuminate, $\frac{2}{3}$–$\frac{3}{4}$ in. long, pale green. *Vexillum* $\frac{3}{4}$–$1\frac{1}{4}$ in. wide, ovate-rotund or cuneate, upper edge truncate, somewhat inturned in the middle, apiculate in the sinus, the midrib with a prominent green dorsal wing or ridge. *Wings* sessile, one-third longer than the vexillum; lobes free at the base, the basal $\frac{3}{4}$–1 in. long, obovate-oblong, 2-lobed, acute at the base; the distal 1–$1\frac{1}{3}$ in. long, obcordate, the base long and narrowly stipitate, without any dorsal auricle. *Labellum* with a cymbiform acuminate limb, about $\frac{1}{3}$ in. long; spur 2–$2\frac{3}{4}$ in. long, very slender, incurved, red. *Filaments* short, wide subulate; anthers orbicular, reddish purple.

Fig. 1, stamens; 2, pistil:—*both enlarged.*

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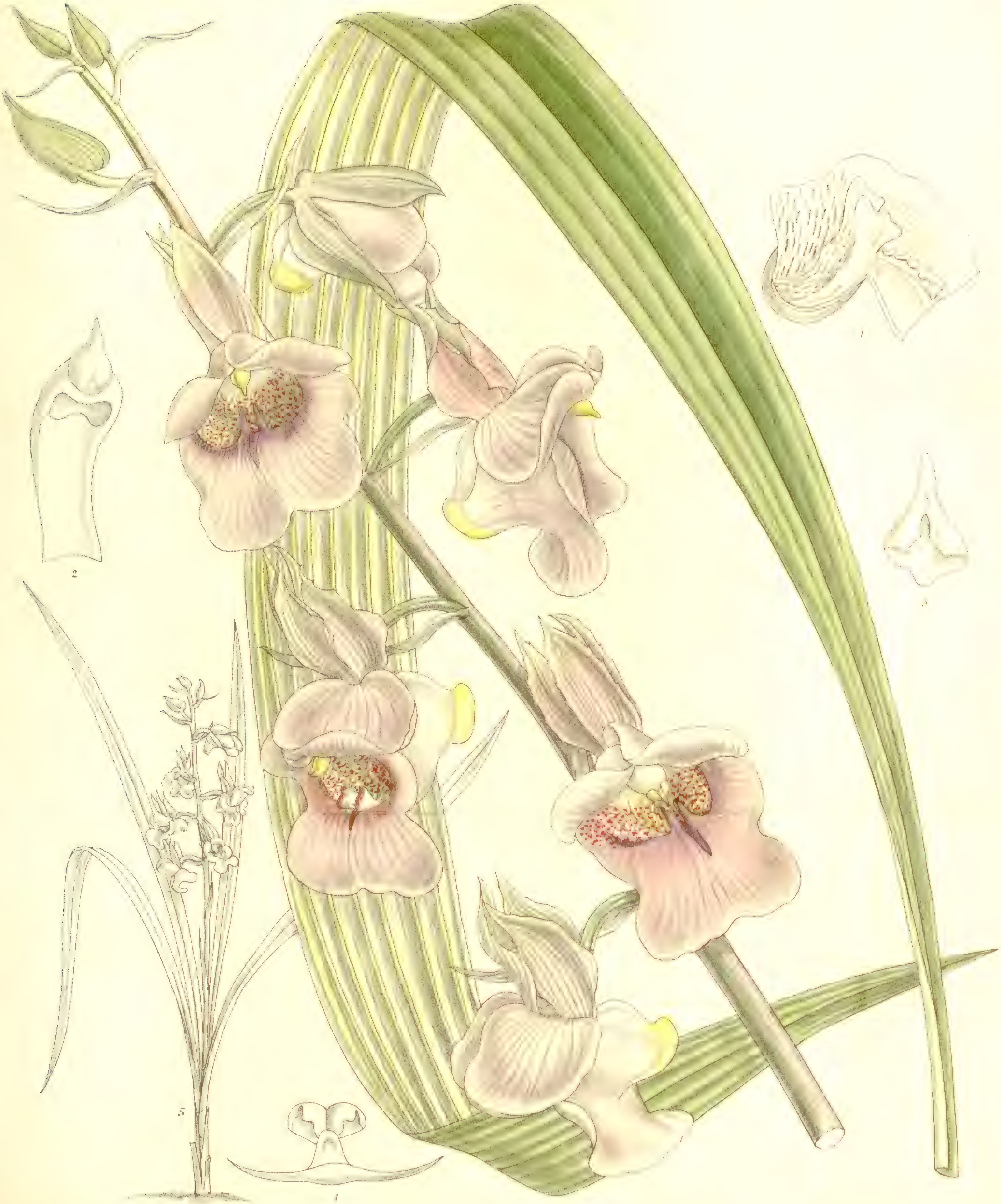

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TAB. 8397.

LISSOCHILUS STYLITES.

Tropical Africa.

ORCHIDACEAE. Tribe VANDEAE.

LISSOCHILUS, *R. Br.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 536.

Lissochilus stylites, *Reichb. f. Otia Bot. Hamb.* pp. 61, 75; *Flora*, 1885, p. 379; *Rolfe in Dyer Fl. Trop. Afr.* vol. vii. p. 83; affinis *L. arenario*, Lindl., sed planta omnino majore et labello callis styliformibus capitatis vel obovatis differt.

Herb terrestris, erecta, 1–1·5 m. alta. *Folia* suberecta vel arcuata, lineari-lanceolata, acuta vel acuminata, basi attenuata, plicata, 0·75–1 m. longa, 3–5 cm. lata. *Scapi* erecti, 1–1·5 m. alti; racemi laxi, circiter 30 cm. longi, 6–9-flori; bracteae lineari-lanceolatae, acuminatae, 2–4 cm. longae, patentes; pedicelli 2·5–3 cm. longi. *Flores* speciosi. *Sepala* reflexa, ovato-lanceolata, acuminatissima vel fere aristata, 2·5–3·5 cm. longa, pallide viridia, basi lilacino-suffusa. *Petala* suberecta, latissime elliptica vel suborbicularia, apice obtusa et subreflexa, 2·5–3 cm. longa, pallide purpurea. *Labellum* late panduratum vel pandurato-trilobum, 3–3·5 cm. longum, basi late saccatum, pallide purpureum; lobi laterales latissimi, rotundati; lobus intermedius transverse oblongus, obtusus vel emarginatus; saccus amplus, apice obtusus vel paullo dilatatus, extra albus, apice flavus, intus pallide viridis, fusco-punctatus, apice bicallosus; calli compressi, 3–4 mm. longi, apice obscure 2–3-lobi. *Columna* clavata, 2 cm. longa; anthera apiculata; pollinia 4, per paria connexa, anthera dehiscente glandula rostelli utrinque longe acuminata in stipitam brevem affixa.—R. A. ROLFE.

Lissochilus stylites is a species which was originally described by the late Professor Reichenbach in 1878 from material collected by Dr. Schweinfurth near Munsa in the Monbuttu Country, and was then stated to be allied to *L. arenarius*, Lindl., but to be distinguished by the presence of a pair of styliform capitate calli in the throat of the lip. A plant collected by Mr. Mechow in Angola was subsequently referred to the same species, as a form that differs only in having a shorter crest. Another plant, which had been received by the Hon. Mrs. Foley from a friend at Ikom, on the Cross River, Southern Nigeria, with the information that it grows in hot and moist localities, flowered in her collection at Packham, Fordingbridge, Hants, in June, 1909. This plant was exhibited at a meeting of the Royal Horticultural Society and supplied the material from which our plate has been prepared. This Nigerian *Lissochilus* is considerably larger in all its parts than the widely distributed *L. arenarius*, but agrees extremely well with the original description of *L. stylites*, and is believed to represent that species. The genus *Lissochilus* is rich in ornamental forms; unfortunately, however, though suitable for cultivation as garden plants, they are not easy to manage. Some, which grow naturally in swampy ground, require subaquatic treatment, and at Kew species such as *L. Horsfallii*, *L. giganteus* and *L. Mahoni* have been brought into flower by planting in large pans of peat and sphagnum half submerged during the growing period in a tank suitable for *Victoria regia*, with the water at a temperature of about 75° F. Others again, like *L. Krebsii* and *L. ugandae*, grow well for a time when planted in a border of peat in a fairly dry house suitable for succulent plants. All the species appear to improve if allowed to rest in a fairly dry condition for two or three months after the leaves have withered.

DESCRIPTION.—*Herb*, terrestrial, erect, 3–5 ft. high. *Leaves* suberect or arcuate, linear-lanceolate, acute or acuminate, narrowed to the base, plicate, 2½–3 ft. long, 1¼–2 in. wide. *Scapes* erect, 3–5 ft. high; racemes lax, about 1 ft. long, 6–9-flowered; bracts linear-lanceolate, acuminate, ¾–1½ in. long, spreading; pedicels 1–1¼ in. long. *Flowers* purple, showy. *Sepals* reflexed, ovate-lanceolate, very acutely acuminate or almost aristate, 1–1⅓ in. long, pale green tinged with lilac at the base. *Petals* suberect, wide elliptic or almost suborbicular, obtuse and somewhat reflexed at the tip, 1–1½ in. long, pale purple. *Lip* widely pandurate or pandurately 3-lobed, 1¼–1⅓ in. long; base widely pouched, pale purple; lateral lobes broad, rounded; mid-lobe transversely oblong, obtuse or emarginate; pouch wide, obtuse or slightly dilated at the tip, outside white, pale green within, yellow at the tip and 2-callose, dotted with pale brown; callosities compressed, 1½–2 lin. long, faintly 2–3-lobed at the tip. *Column* clavate, ¾ in. long; anther apiculate; pollinia 4, united in pairs, attached when the anther opens by a short stalk to a long acuminate rostellar gland.

Fig. 1, part of lip; 2, column; 3, anther cap; 4, pollinarium; 5, sketch of an entire plant:—*all enlarged except 5, which is much reduced.*

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TAB. 8398.

APHELANDRA FASCINATOR.

Tropical South America.

ACANTHACEAE. Tribe APHELANDREAE.

APHELANDRA, *R. Br.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 1102.

Aphelandra fascinator, *Linden & André in Illustr. Hort.* vol. xxi. p. 42, tab. 164; ab *A. acutifolia*, Nees, affini bracteis integris undique molliter glanduloso-pilosis, sepalis longiuscule setaceo-acuminatis glanduloso-pilosis, labii inferioris segmento intermedio lateralibus duplo longiore latioreque diversa.

Suffrutex caulibus teretibus glabris; gemmae axillares albo-tomentosae. *Folia* integra, elliptica vel late lanceolata, utrinque acuminata, basi in petiolum brevem attenuata, ad 20 cm. longa, ad 1 cm. lata, molliter herbacea, glabra nisi novella subtus fugaciter pubescentia, supra saturate viridia vittis argenteis secundum costam nervosque dispositis percursa, subtus purpureo-olivacea costa et nervis purpureis prominentibus. *Spicae* ad apices ramorum ortae, densae; bracteae ovato-ellipticae, subacutae, integrae, 2–2·2 cm. longae, ad 1 cm. latae, extra undique glanduloso-albo-pilosae; bracteolae subulatae, ad 1·5 cm. longae, eodem indumento ac bracteae. *Sepala* herbacea, aequilonga, 18–20 mm. longa, posticum oblongum, 3-dentatum, dentibus subulatis interiore quam lateralibus multo breviore, caetera e basi anguste-lanceolata longe subulata, omnia glanduloso-pubescentia, superne longe albo-ciliata. *Corolla* fulgenter coccinea, sparse molliterque glanduloso-pilosa; tubus cylindricus, 3·5-4 cm. longus, 4–5 mm. latus; labium superum valde concavum, a fronte visum late lanceolatum, acutum vel acute acuminatum, 2 cm. longum; labium inferum, inaequaliter 3-partitum, lobo intermedio late rotundato-ovato, 2·5–3 cm. longo, 2 (vel ultra) cm. lato, lateralibus late elliptico-ovatis acutis 1·7–2·9 cm. longis 1·1–1·2 cm. latis. *Stamina* paullo supra basin inserta; filamenta ima basi glanduloso-villosula, supra medium patule eglanduloso-pilosa, ultra 4 cm. longa; antherae acutae, 5 mm. longae, glabrae vel magis minusve villosulae. *Ovarium* praeter apicem glanduloso-villosulum glabrum; stylus interne et ad stigma pubescens. *Capsula* ignota.—O. STAPF.

According to Mr. André the handsome Acanthad which forms the subject of our illustration was discovered in semi-umbrageous forests in Colombia in 1872, and was introduced to cultivation by Mr. J. Linden in the following year; it was first described from a plant in Mr. Linden's nursery at Brussels in 1874. There is, however, in the herbarium at Kew a specimen collected in the neighbourhood of Bogota by Mr. D. Bowman, when travelling on behalf of the Royal Horticultural Society, which agrees so closely with the form of *Aphelandra fascinator* known in cultivation that it may safely be treated as belonging to the same

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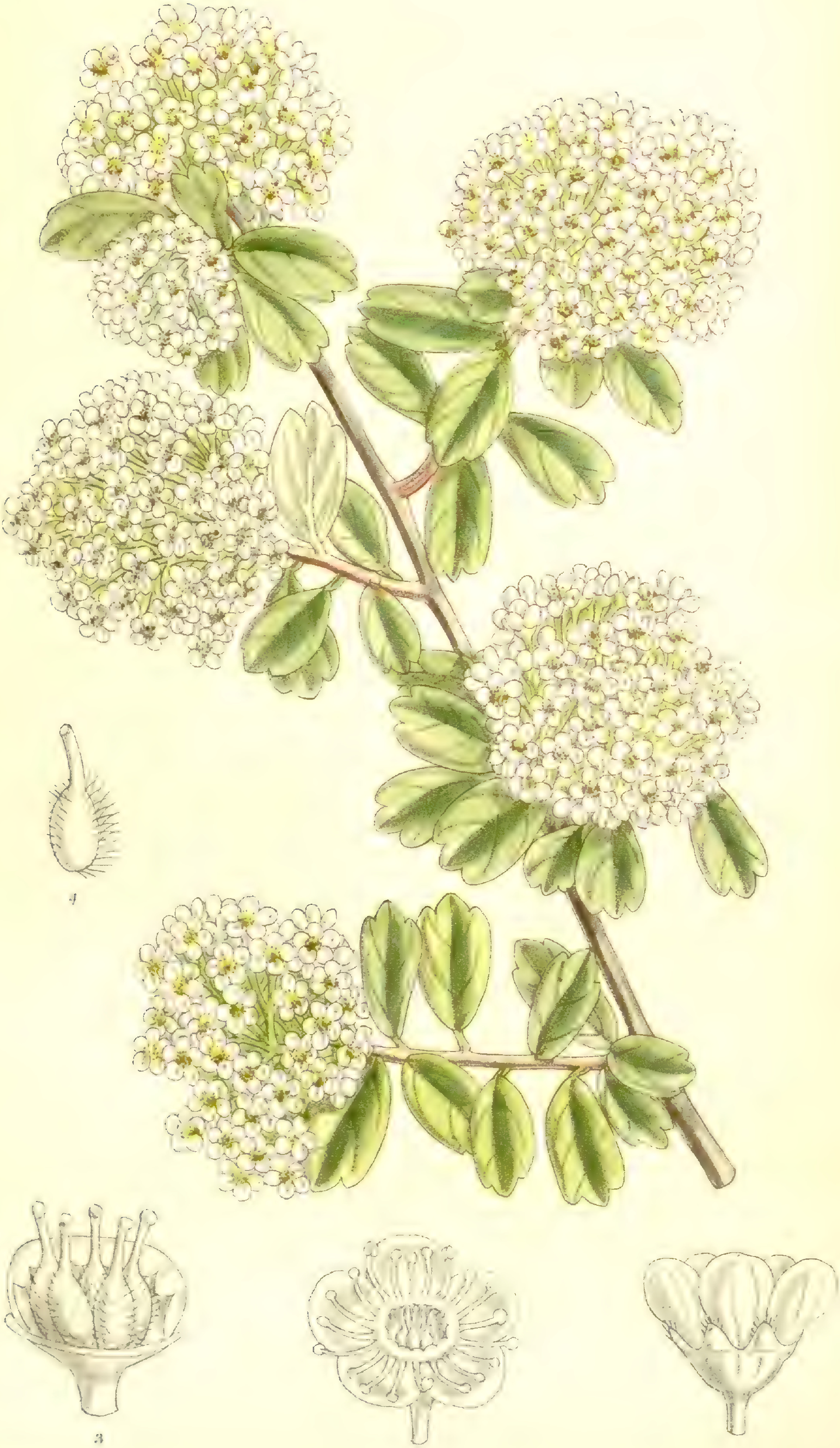
species. This specimen, which was communicated to Kew by the late Mr. W. W. Sanders, was obtained by Bowman some time between 1866 and 1868, the year in which he died. *A. fascinator* is one of the most useful as it is one of the most striking of garden Acanthads, being easy to grow in a warm moist greenhouse and giving abundant flower during the winter months. At Kew it is raised annually from cuttings set in spring and grown in a rich loamy soil. When in flower the plants do well if subjected to the conditions suitable for tropical Begonias.

DESCRIPTION. — *Undershrub*; stems terete, glabrous; axillary buds white-tomentose. *Leaves* entire, elliptic or wide-lanceolate, acuminate, narrowed at the base into a short petiole, up to 8 in. long and 3 in. wide, softly herbaceous, when young softly fugaciously puberulous, soon glabrous, dark green above with silvery bands alongside the midrib and main-nerves, beneath with prominent purple nerves and veins, and between these paler purplish. *Spikes* dense, terminating the branches; bracts ovate-elliptic, somewhat acute, entire, $\frac{3}{4}$–1 in. long, $\frac{1}{3}$ in. wide or rather wider, glandular white pilose externally; bracteoles subulate, $\frac{1}{2}$–$\frac{2}{3}$ in. long, pilose like the bracts. *Sepals* herbaceous, 9–10 lin. long, the posterior oblong, 3-toothed, the teeth subulate and the inner much shorter than the lateral; the remaining sepals subulate from a narrowly lanceolate base, all glandular pubescent and with long white ciliae in the upper portion. *Corolla* brilliant scarlet, sparingly softly glandular pilose; tube cylindric, $1\frac{1}{3}$–$1\frac{1}{2}$ in. long, 2–$2\frac{1}{2}$ lin. wide; upper lip very concave, wide lanceolate as seen from in front, acute or sharply acuminate, 10 lin. long; lower lip unequally 3-partite, the mid-lobe widely rounded ovate, 1–$1\frac{1}{4}$ in. long, $\frac{3}{4}$ in. wide, lateral lobes elliptic-ovate, acute, about $\frac{3}{4}$ in. long, $\frac{1}{2}$ in. wide. *Stamens* attached a short distance above the base; filaments glandular-puberulous at their insertion, above the middle clothed with short spreading non-glandular hairs, nearly 2 in. long; anthers acute, $2\frac{1}{2}$ lin. long, glabrous or somewhat puberulous. *Ovary* glabrous except at the tip which is glandular puberulous; style hairy below and again near the stigma. *Capsule* not seen.

Fig. 1, calyx and style; 2, base of corolla-tube, and stamens; 3 and 4, anthers; 5, ovary:—*all enlarged.*

8399



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Tab. 8399.

SPIRAEA Wilsoni.

Central China.

Rosaceae. Tribe Spiraeeae.

Spiraea, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 611.

Spiraea (Chamaedryon) **Wilsoni,** *Duthie in Hort. Veitch.* (1906), p. 379; species e grege *S. canescentis,* D. Don, sinensibus *S. Henryi,* Hemsl. et *S. Veitchii,* Hemsl. quam maxime accedens, ab hac foliis pubescentibus ramulisque floriferis abbreviatis facillime sejungenda, ab illa foliis integris vel paucidentatis pedunculis pedicellisque fere glabris apte distinguenda.

Frutex ornatus 2–2·5-metralis, arcuatim ramosus ramis elongatis; ramuli purpurascentes, pubescentes. *Folia* alterna, decidua, firmula, ovata vel obovata vel oblonga, subacuta vel obtusa, basi cuneata, margine praesertim in ramulis floriferis integra vel apicem versus pauci-dentata, 2–3 cm. longa, 1–2·5 cm. lata; supra opaca, cinereo-puberula, subtus pallidiora, pubescentia, ciliata; petiolus 3–4 mm. longus. *Corymbi* compacti, subglobosi, in ramulis floriferis lateralibus terminales, pluriflores, 4–5 cm. diametro; pedunculi pedicellisque parce pilosi vel omnino glabri. *Flores* albi, 0·6 cm. lati. *Calyx* 5-lobus; lobi triangulares, margine ciliati, ceterum glabri, tubo campanulato glabro breviores. *Petala* 5, suborbicularia. *Carpella* 5, 2·5 mm. longa, membranacea, minute pilosa, e latere ventrali dehiscentes.—W. J. Bean.

The subject of our plate is one of a well-defined group of three closely allied Chinese Spiraeas added to European collections during recent years. The group as a whole is nearly related to the Himalayan *S. canescens*, D. Don, which has long been familiar in our gardens. But while readily distinguishable from that Himalayan shrub, the members of this Chinese group, which includes *S. Henryi*, Hemsl., figured at t. 8270 of this work, *S. Veitchii*, Hemsl., figured at t. 8383, and *S. Wilsoni*, the species now depicted, approach each other more closely, and while all three are fully entitled to separate recognition, at least, from the horticultural standpoint, some care will be called for in their discrimination in cases where the types are not grown side by side. The three plants appropriately commemorate the names of individuals who have played leading parts in the discovery and introduction to Europe of plants from Central and Western China. *S. Veitchii* will always be easily distinguished from *S. Wilsoni* by its glabrous entire leaves, its much longer flowering branches and its finely

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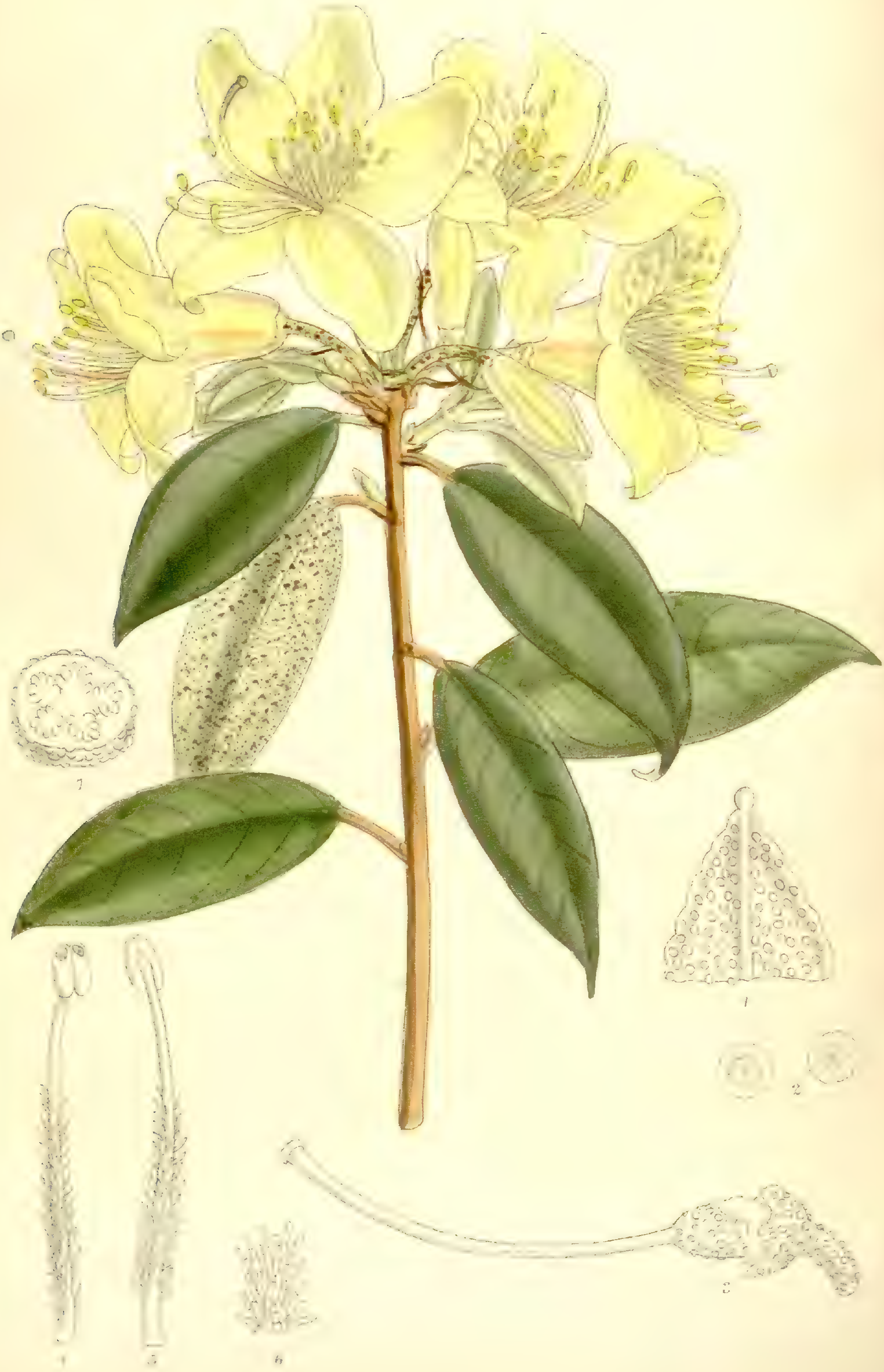
pubescent pedicels and calyx-tube. *S. Henryi* on the other hand is not so readily distinguishable from our plant by any striking difference in structure, though the two are unmistakable when seen growing side by side. But apart from their difference in habit, *S. Henryi* will be easily recognised by its much more frequently and more coarsely toothed leaves, which are slightly lustrous and are less pubescent, as well as by its laxer corymbs, with pilose pedicels and a hairy calyx-tube. *S. Henryi*, moreover, flowers about a fortnight later than *S. Wilsoni* does. Like nearly all the Spiraeas, *S. Wilsoni* is easily cultivated where a good loamy soil is available. It is advisable to remove old flowering branches that have become worn out, but any shortening back of the shoots must be avoided. The plant flowers on short branchlets produced on the shoots of the previous summer; the aim should therefore be to have the latter as long as possible and to prevent them from becoming unduly crowded. Propagation is readily effected by making cuttings of side twigs with a "heel" in the month of July; the flowers open in June. The material from which our plate has been prepared was supplied from one of the original plants of this species growing in the nursery of Messrs. J. Veitch & Sons at Coombe Wood.

DESCRIPTION.—*Shrub*, of graceful habit, ultimately 6–8 ft. high, with long arching branches and purplish pubescent young shoots. *Leaves* deciduous, rather firm, oval or obovate or oblong, somewhat acute or quite blunt at the tip, cuneate at the base, either entire—especially on the flowering branchlets, or with a few teeth near the apex only; $\frac{3}{4}$–$2\frac{1}{4}$ in. long, $\frac{3}{8}$–1 in. wide; dull greyish green and pubescent above, paler and more closely pubescent beneath, ciliate; petiole $\frac{1}{8}$ in. long or shorter. *Corymbs* terminal on short lateral branchlets, compact, rounded, many-flowered, $1\frac{1}{2}$–2 in. across; peduncles and pedicels sparsely pilose or glabrous. *Flowers* pure white, $\frac{1}{4}$ in. wide. *Calyx* with 5 triangular lobes rather shorter than tube, margins of lobes ciliate, otherwise quite glabrous. *Petals* 5, suborbicular. *Carpels* 5, $\frac{1}{10}$ in. long, minutely pilose, dehiscing ventrally.

Fig. 1, a flower seen from the side; 2, the same seen from above; 3, gynoecium; 4, a single carpel:—*all enlarged.*



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Tab. 8400.

RHODODENDRON AMBIGUUM.

Western China.

Ericaceae. Tribe Rhodoreae.

Rhododendron, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 599.

Rhododendron (Eurhododendron) **ambiguum,** *Hemsl.*; inter species foliis lepidoto-glandulosis *R. trifloro*, Hook. f., valde affinis, differt tamen foliis maturis minus coriaceis, magis acuminatis, lepidibus majoribus minus crebris, cymis plus quam trifloris et corolla extra pauci-lepidota intus postice viridi-maculata.

Frutex dense ramosus, ramis floriferis graciliusculis primum praeter glandulis paucis nudis. *Folia* persistentia, sparsa, petiolata, lanceolata, cum petiolo 4–8 cm. longa, acuminata, apice glandula subglobosa instructa, basi rotundata, utrinque primum crebre lepidoto-glandulosa, supra cito nuda, subtus inter lepides primum luteas demum feres nigras pallida, venis immersis obscuris. *Corymbi* umbelliformes, terminales, saepius 5–7-flori; pedicelli graciliusculi 1·5–2 cm. longi, curvati, crebre lepidoti. *Calyx* brevissimus, dentibus obtusis. *Corolla* late campanulata, circiter 5 cm. diametro, viridi-flava, intus puberula postice viridi-maculata, extra pauci-lepidota, tubo brevi, lobis latis rotundatis. *Stamina* 10, alterna breviora, longiora corollam paullo excedentia; filamenta filiformia, medio pilis latis tubuloso-vesiculatis 1-locularibus dense vestita. *Ovarium* dense lepidotum, 5-loculare, stylo glabro stamina paullo excedente. *Capsula* adhuc ignota.—W. Botting Hemsley.

The Rhododendron here figured is a member of the group of *Eurhododendra*, the species of which are characterised by being more or less lepidote both as regards leaves and flowers, and by having both leaves and flowers of medium size, the latter often yellow and in few flowered corymbs. This group is represented in China by a considerable number of closely related forms, including *R. lutescens*, Franch., and *R. concinnum*, Hemsl., which is also in cultivation in this country. The nearest ally of the form here described is perhaps the Himalayan *R. triflorum*, Hook. f. *R. ambiguum*, which was introduced from Western China by Mr. E. H. Wilson on behalf of Messrs. J. Veitch & Sons, to whom we are indebted for the material from which our figure has been prepared, will be welcomed in gardens as an addition to the scanty number of species with yellow

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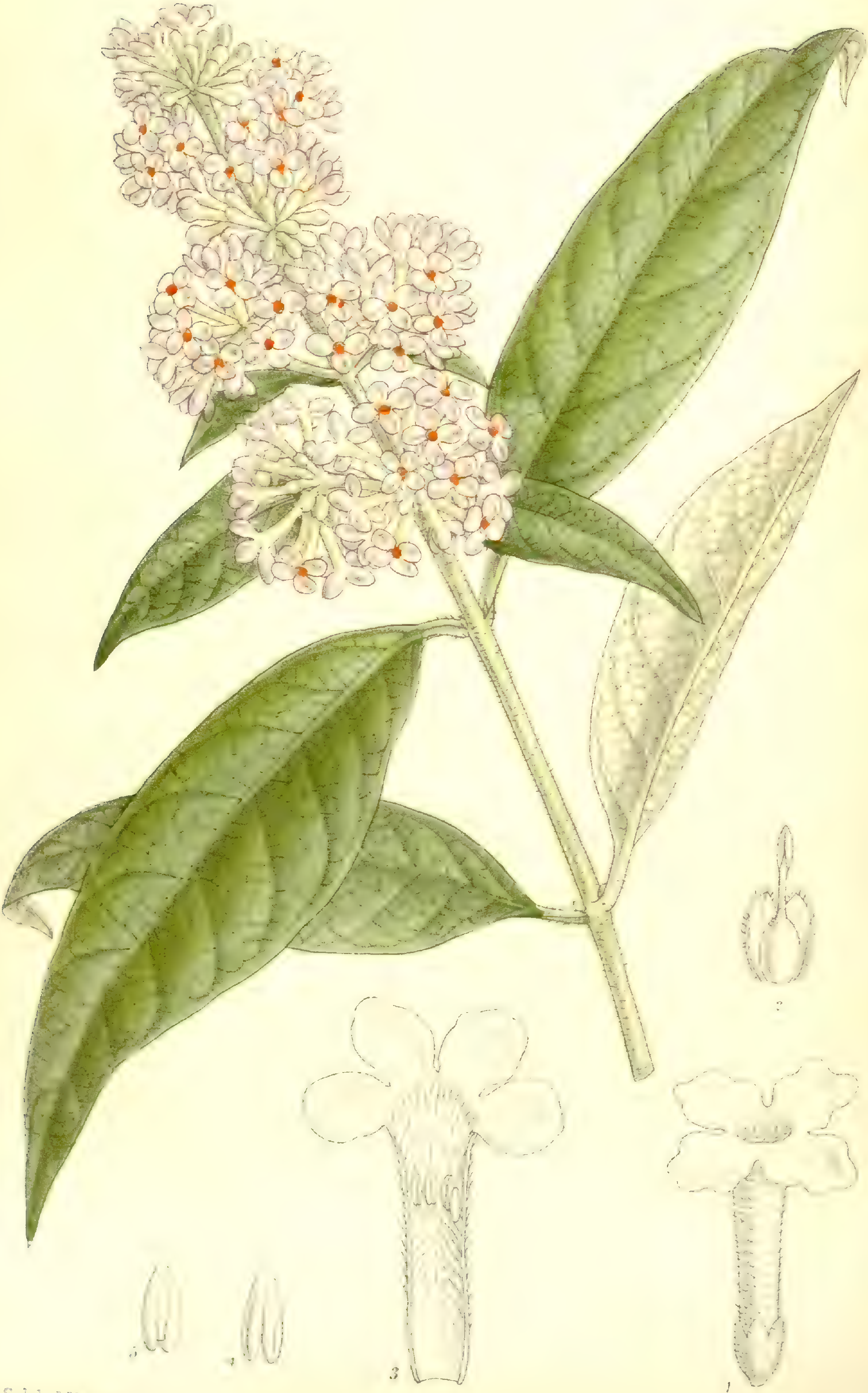
flowers. Like most of the forms included in the same group, it promises to be quite hardy. It thrives in a moist but not too heavy soil free from calcareous matter. It seems likely to produce good seed under cultivation, but failing its propagation in this manner may be increased by cuttings.

Description.—*Shrub*, closely branched; flowering twigs rather slender and naked except for a few glands. *Leaves* persistent, scattered, petioled, lanceolate, including the petiole 1½–3 in. long, acuminate, with a subglobose apical gland, rounded at the base, at first closely glandular-scaly on both sides but soon becoming naked above, pale beneath between the close-set scales which at first are yellow but soon become almost black; nerves rather faint. *Corymbs* umbellate, terminal, usually 5–7-flowered; pedicels rather slender, ½–¾ in. long, curved, closely scaly. *Calyx* very short, the teeth blunt. *Corolla* wide campanulate, about 2 in. across, greenish yellow, puberulous within and dotted with green behind, sparingly scaly outside; the tube short, the lobes broad and rounded. *Stamens* 10, alternately longer and shorter, the longer somewhat exserted; filaments filiform, densely clothed except above and at the very base with short broad hollow 1-celled hairs. *Ovary* closely scaly, 5-celled; style glabrous, rather longer than the stamens. *Capsule* not seen ripe.

Fig. 1, terminal portion of a leaf, showing the scaly under surface and the apical gland; 2, scales from under surface of leaf; 3, calyx and pistil; 4 and 5, stamens; 6, portion of the pilose section of a filament:—*all enlarged.*

8401



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TAB. 8401.

BUDDLEIA OFFICINALIS.

China.

LOGANIACEAE. Tribe EULOGANIEAE.

BUDDLEIA, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 793.

Buddleia officinalis, *Maxim. in Bull. Acad. Pétersb.* vol. xxvi. (1880), p. 496, et *Mélang. Biol.* vol. x. p. 675; *Oliv. in Hook. Icon. Plant.* t. 1972; *Hemsl. in Journ. Linn. Soc.* vol. xxvi. p. 675; *Gard. Chron.* 1911, vol. xlix. p. 201, cum fig.; ex affinitate *B. macrostachyae*, Benth., a qua foliis petiolatis, glomerulis pedunculatis, ramis fere teretibus, floribusque minoribus differt

Frutex ramosissimus, 1–2·5 m. altus. *Rami* fere teretes, dense cinereo-tomentosi. *Folia* oblongo- vel lineari-lanceolata, acuminata, circiter 10 cm. longa, 1–2·5 cm. lata, integra vel argute serrulata, supra sparse appresse pilosa, subtus dense cinereo-tomentosa; petioli 5 mm. longi, supra canaliculati. *Thyrsi* ad ramos terminales, 8–30 cm. longi; glomeruli breviter pedunculati, 3–10-flori; pedicelli quam calycis tubus breviores; bracteolae lineares, pedicellis aequilongae. *Calyx* 3 mm. longus, extra dense tomentosus; tubus quam lobi obtusi duplo longior. *Corolla* pallide vel obscure lilacina, fauce aurantiaca; tubus circiter 10 mm. longus, leviter curvatus, utrinque pilosus; limbus 6 mm. diametro; lobi 4, late elliptici, obtusi. *Antherae* 1·5 mm. infra corollae faucem affixae, oblongae. *Ovarium* 2 mm. longum, apicem versus tomentosum; stylus brevis, basi pubescens; stigma longum, clavatum, 2-fidum. *Capsula* ovoidea, obtusa, calyce duplo longior.—*B. madagascariensis*, Hance in Journ. Bot. 1882, p. 37, non Lam.—C. H. WRIGHT.

The *Buddleia* which forms the subject of our illustration was originally discovered by Dr. Piasezki in the provinces of Shensi and Kansu in Northern China, and was first described from his specimens by the late Mr. Maximowicz thirty years ago. The name *B. officinalis*, then applied to it, has reference to the circumstance that, according to Piasezki, the flower buds are collected and carried to Hankow, where they are sold as a medicine. The plant has since been found by Mr. A. Henry in the province of Hupeh in Central China, and has more recently been met with in the Yang-tze valley by Mr. E. H. Wilson when collecting on behalf of the Arnold Arboretum. To Wilson horticulture is indebted for the introduction of the species to cultivation, and the material for our figure has been obtained from a plant raised from seed presented by Professor Sargent in 1908, which flowered at Kew in

November, 1910. *B. officinalis* promises to be a useful winter flowering plant for greenhouse decoration, a class to which additions are always welcome. It may prove hardy in the extreme south-west of England, but elsewhere will call for treatment such as is given to *B. asiatica* and to pot chrysanthemums. The cuttings should be rooted in bottom heat in spring and grown in pots of rich loamy soil. During summer the plants should be grown in the open air and fed liberally, the pots being plunged in ashes. About the beginning of October, before frosts occur, the plants should be taken indoors to flower. When thus treated they remain in flower for about three months. Like its ally *B. variabilis*, Hemsl., figured at t. 7609 of this work, our plant varies somewhat as regards its foliage, but is readily distinguished by the corolla, which is pubescent outside, and by the different tomentum on the under surface of the leaves.

Description. — *Shrub*, 3–8 ft. high, with numerous densely grey pubescent nearly terete branches. *Leaves* oblong-lanceolate to linear-lanceolate, acuminate, about 4 in. long, $\frac{1}{3}$–1 in. wide, entire or sharply serrulate, sparingly adpressed hairy above, densely grey pubescent beneath; petiole $2\frac{1}{2}$ lin. long, grooved above. *Flowers* in thyrses at the ends of the branches; thyrses 3–12 in. long, composed of short peduncled, 3–10-flowered glomerules; pedicels shorter than the calyx-tube; bracteoles linear, as long as the pedicels. *Calyx* $1\frac{1}{2}$ lin. long, densely pubescent outside; tube twice as long as the blunt lobes. *Corolla* pale or very pale lilac with orange throat; tube about 5 lin. long, slightly curved, hairy without and within; limb 3 lin. wide; lobes 4, wide elliptic, obtuse. *Anthers* oblong, adnate to corolla-tube some distance below the throat. *Ovary* 1 lin. long, tomentose in the upper third; style short, pubescent below; stigma long, clavate, 2-fid. *Capsule* ovoid, obtuse, twice as long as the calyx.

Fig. 1, a flower; 2, calyx in section, and pistil; 3, corolla, laid open; 4 and 5, anthers:—*all enlarged.*

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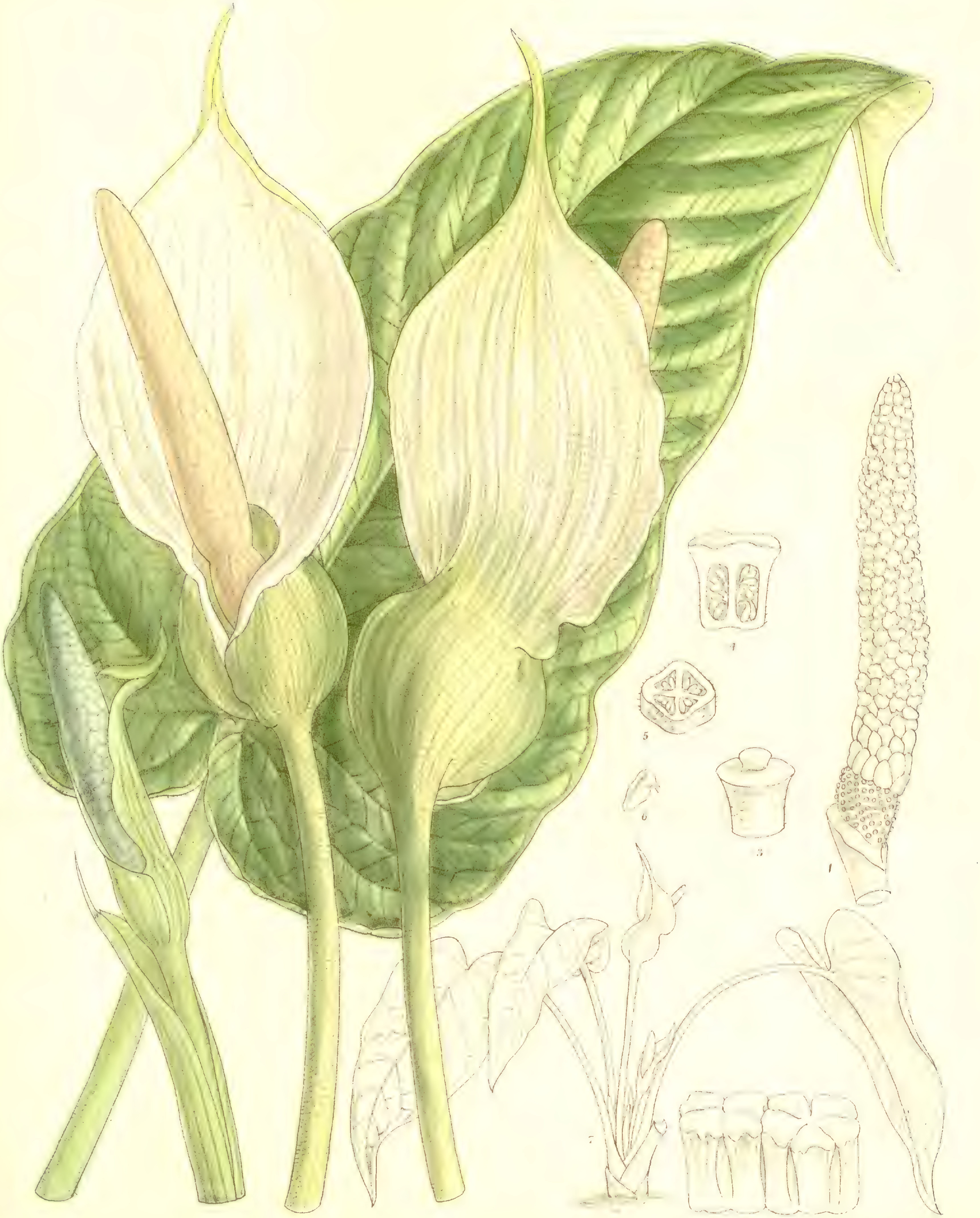

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TAB. 8402.

CALADIUM PUBESCENS.

Peru.

AROIDEAE. Tribe COLOCASIEAE.
CALADIUM, *Vent.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 976.

Caladium pubescens, *N. E. Br.*; affinis *C. puberulo,* Engl., sed foliis cordatis (nec sagittatis) lobis posticis quam anticus fere decies brevioribus, venis primariis numerosioribus et spadice multo longiore differt.

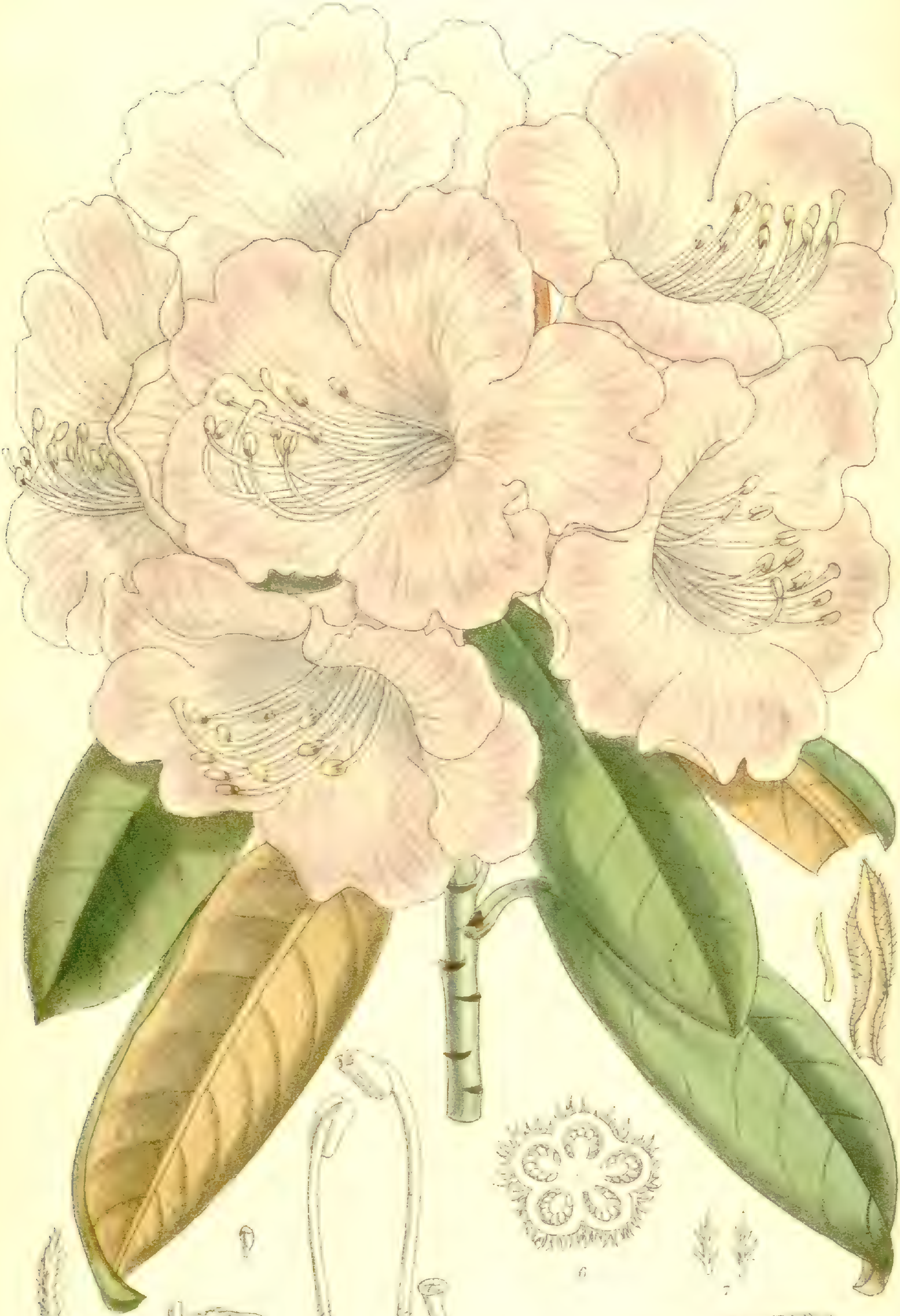
Herba. *Tuber* globosum vel depresso-globosum, profuse bulbilliferum. *Foliorum* petiolus 10–32 cm. longus, basi vaginatus, dense pubescens, pallide virens; lamina deflexa, 20–30 cm. longa, 9·5–23 cm. lata, cordato-ovata vel elongato-cordato-ovata, subabrupte acuminata vel acuta, utrinque pubescens, laete viridis, lobis basalibus 1·5–3 cm. longis late rotundatis, venis primariis e costa utrinque 10–18 patentibus levissime curvatis, basalibus in sinu breviter denudatis, supra impressis subtus prominentibus. *Pedunculus* 20–21 cm. longus, pubescens, pallide virens. *Spatha* 13 cm. longa, extra subvelutino-pubescens, intus glabra; tubus 2·5–3 cm. diametro, subglobosus, basi obliquus, dorso canaliculatus, pallide virens; lamina suberecto-reflexa, 10·5 cm. longa, 6 cm. lata, ovata, caudato-acuminata, intus alba, extra albo-virens. *Spadix* 9–10 cm. longus, parte feminea 1 cm. longa, 1 cm. crassa, luteo-alba, parte mascula 7–9 cm. longa, 1·2–1·5 cm. crassa, leviter compressa, obtusa, lactea, basi staminodiis pauciseriatis instructa. *Ovarium* oblongum, truncatum, pilis paucis minutis conspersum, 4-loculare, loculis pluriovulatis.—N. E. BROWN.

The very distinct *Caladium* which forms the subject of our illustration was sent to Messrs. Sander & Sons, St. Albans, from Peru, where it was obtained by Mr. Forget. As it reached this country along with a consignment of *Cattleya Rex* the probability is that it is a native of the Moyobambo region. The plant which supplied the material for our figure was presented to Kew by Messrs. Sander, and flowered for the first time in September, 1909. Another individual flowered simultaneously in the Royal Botanic Garden at Glasnevin. Among Caladiums the species is remarkable for its pubescence, a character rarely met with in the Aroid family at all, and in this respect it is very unlike any other *Caladium* in cultivation; indeed there is but one other species in the genus which has been described as pubescent. This is *C. puberulum,* Engl., which is undoubtedly nearly allied to our plant, but which differs in the characters noted by Mr. Brown. There are, however, two other Aroids, which have hitherto been regarded as species of *Xanthosoma*; *X. pilosum,* C. Koch, and *X. Hot-*

tonianum, Schott; so closely allied to *C. pubescens* that Mr. Brown has found it necessary to transfer both to *Caladium*, as *C. pilosum*, N. E. Br., and *C. Hottonianum*, N. E. Br., respectively. So close is the affinity between *C. pilosum*, N. E. Br., and *C. puberulum*, Engl., that it is barely possible to distinguish the two by the characters assigned to the latter. All three differ conspicuously from *C. pubescens* in having only five or six primary veins on each side the midrib; in *C. pubescens* the number varies from ten to eighteen. *C. pubescens* is rather exceptional in the genus in having an attractive inflorescence; the white limb of the spathe renders this quite ornamental. The plant flowers freely when grown in a tropical moist house under the treatment suitable for other species of the genus. It is easily propagated by division of the fleshy, potato-like tuber.

DESCRIPTION.—*Herb*; tuber globose or depressed-globose, bearing numerous bulbils. *Leaves* 8–12 in. long, $3\frac{1}{2}$–9 in. wide, ovate-cordate or elongate cordate-ovate, somewhat abruptly acuminate or acute, pubescent on both sides, bright green, basal lobes $\frac{2}{3}$–$1\frac{1}{4}$ in. long, wide rounded, principal nerves about 10–18 on each side of the midrib, slightly curved, the basal pair marginal for a short distance at the sinus, all somewhat impressed above and raised beneath; petiole 4–13 in. long, sheathing at the base, densely pubescent, pale green. *Peduncle* about 8 in. long, pubescent, pale green. *Spathe* 5–6 in. long, almost velvety-pubescent externally, glabrous within; tube 1–$1\frac{1}{4}$ in. wide, subglobose, oblique at the base, channelled on the back, pale green; blade suberect, then reflexed, 4 in. long, $2\frac{1}{4}$ in. wide, ovate, caudate acuminate, white within, greenish-white on the back. *Spadix* $3\frac{3}{4}$–4 in. long; female portion 5 lin. long and about as thick, yellowish white; male portion about 3 in. long, 6–8 lin. wide, slightly compressed, obtuse, milk white, with a few rows of staminodes at the base. *Ovary* oblong, truncate, beset with a few minute hairs; cells of ovary 4, each with several ovules.

Fig. 1, spadix; 2, male flower; 3, female flower; 4 and 5, female flower, in vertical and in transverse section; 6, ovule; 7, sketch of an entire plant:—*all enlarged except 7, which is much reduced.*



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TAB. 8403.

RHODODENDRON JAPONICUM, var. PENTAMERUM.

Japan.

ERICACEAE. Tribe RHODOREAE.

RHODODENDRON, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 599.

Rhododendron (Eurhododendron) **japonicum,** *Schneider Ill. Handb. Laubholzk.* vol. ii. p. 490; **var. pentamerum,** *Hutchinson*; a typo corollis pentameris staminibus 10–11 et ovario 5-loculare differt.

Frutex; rami glabri. *Folia* oblanceolata, apice obtuse mucronata, basi subacuta, 7–8 cm. longa, 2–3 cm. lata, rigide coriacea, supra viridia, glabra, arcte reticulata, subtus ferrugineo-tomentosa; petioli circiter 1·5 cm. longi, robusti, transverse rugosi, minute pubescentes, demum glabri. *Perularum* folia obovato-spathulata, apice rotundata, ad 2·5 cm. longa, membranacea, utrinque pubescentia. *Bracteae* lineari-filiformes, 1 cm. longae, pilosae. *Pedicelli* 2·5–3 cm. longi, parce crispo-puberuli. *Flores* 6–7 cm. expansi. *Calyx* brevis, 5-dentatus, dentibus triangularibus subobtusis parce pubescentibus. *Corolla* subcampanulata, rosea, 5-mera; tubus 2 cm. longus, utrinque glaber; lobi subrotundati, emarginati, ad 3 cm. lati. *Stamina* 10–11, vix exserta; filamenta inaequalia, ad 3 cm. longa, inferne puberula, superne glabra; antherae flavae, 3·5 mm. longae. *Ovarium* 5-loculare, dense rubiginoso-pilosum; stylus filamenta vix superans, glaber; stigma minute 5-fidum.—*R. Metternichii*, var. *pentamerum*, Maxim. in Mém. Acad. Pétersb. sér. 7, vol. xvi. no. 9, p. 22. *R. Hymenanthes*, var. *pentamerum*, Makino in Tokyo Bot. Mag. vol. xvi. p. 33. *R. Metternichii*, Shirasawa, Ic. Ess. For. Jap. vol. ii. t. 60, fig. 1–13.—J. HUTCHINSON.

The handsome Rhododendron which forms the subject of our figure has been known for some time in collections under the name *R. Metternichii*, Sieb. & Zucc. It is not, however, the same as the plant so named by Siebold and Zuccarini, which differs from that here depicted in having a corolla with seven lobes, in having fourteen stamens and in having a seven-celled ovary. The form in question is, however, the one that was originally described by Blume under the name *Hymenanthes japonica*; to the use of this earlier specific name Schneider has recently reverted, though it is remarkable that in doing so he has not alluded to the existence of the variety now figured. Like the typical plant our variety is wild in the mountains of Central Japan, and both are frequently met with in gardens in

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that country. In spite, therefore, of their rather striking differences the two appear to be races rather than varieties of the same species. The cultivation of this Rhododendron does not differ from that which is suitable for Rhododendrons generally. It likes a soil preferably but not necessarily of a peaty nature and free from lime; it requires abundant moisture. When peat is not readily available a plentiful admixture of decayed leaves forms a good substitute. The plant from which the material for our plate was obtained is one imported from Tokyo in 1894; at Kew it grows as a low spreading bush.

Description.—*Shrub*; branches glabrous. *Leaves* oblanceolate, apex bluntly mucronate, base somewhat cuneate, about 3 in. long, $\frac{3}{4}$–$1\frac{1}{4}$ in. wide, firmly coriaceous, green, glabrous and closely reticulate above, rusty tomentose beneath; petiole about $\frac{2}{3}$ in. long, stout, transversely rugose, at first finely pubescent, at length glabrous. *Bud-scales* obovate spathulate, rounded at the tip, reaching 1 in. in length, membranous, pubescent on both surfaces. *Bracts* linear-filiform, 5 lin. long, pilose. *Pedicels* 1–$1\frac{1}{4}$ in. long, sparingly clothed with crisped hairs. *Flowers* about $3\frac{1}{2}$ in. across. *Calyx* short, 5-toothed; teeth triangular, rather blunt, sparingly pubescent. *Corolla* almost campanulate, rose-coloured, 5-lobed; tube $\frac{3}{4}$ in. long, glabrous without and within; lobes somewhat rounded, emarginate, over 1 in. wide. *Stamens* 10–11, hardly exserted; filaments unequal, over 1 in. long, puberulous below, glabrous above; anthers yellow, nearly 2 lin. long. *Ovary* 5-celled, densely rusty pilose; style hardly longer than the filaments, glabrous; stigma minutely 5-lobed.

Fig. 1, part of leaf, showing undersurface; 2, bract; 3, calyx and pistil; 4 and 5, stamens; 6, section of ovary; 7, hair from ovary:—*all enlarged.*

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TAB. 8404.

LEONOTIS DYSOPHYLLA.

South Africa.

LABIATAE. Tribe STACHYDEAE.

LEONOTIS, *Pers.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 1214.

Leonotis dysophylla, *Benth. in E. Meyer, Comm.* p. 242, *et in DC. Prodr.* vol. xii. p. 536; *Skan in Dyer, Fl. Cap.* vol. v. sect. 1, p. 380; affinis *L. Melleri*, Baker, sed foliis subtus pubescentibus vel plus minusve villosis nec albido-tomentosis, calycis dentibus brevioribus, floribus aurantiacis nec albis differt.

Herba; caules robusti, 6–10 dm. alti vel ultra, basi lignosi, dense puberuli. *Folia* ovato-lanceolata vel interdum ovata, usque ad 8 cm. longa et 3 cm. lata, apice obtusa vel subacuta, basi longe cuneato-attenuata, sat regulariter crenata vel crenato-serrata, breviter et molliter pubescentes vel saepe subtus praesertim dense villosa, saepe crassiuscula; petiolus 1·5–4 cm. longus. *Verticillastri* solitarii vel duo, magni, multiflori. *Bracteolae* lineares, 1–1·5 cm. longae, apice spinescentes. *Pedicelli* circiter 3 mm. longi. *Calyx* subtubulosus, incurvatus, 1·8–2·4 cm. longus, adpresse puberulus; dentes 8, spinescentes, dente supremo deltoideo-ovato 4–6 mm. longo quam ceteri triangulares multo longiore. *Corolla* aurantiaca, 2·5–3·5 cm. longa, incurvata, superne extra dense villosa; tubus subtubulosus, tubo calycis aequilongus; labium superum oblongum, concavum, 1·5–2 cm. longum, integrum; labium inferum 3-lobatum, 8–10 mm. longum, lobo intermedio obovato retuso 6–8 mm. longo, lobis lateralibus ellipticis leviter brevioribus. *Stamina* sub galea ascendentia; filamenta villosa. *Stylus* demum staminibus paulo longior, bifidus, lobo postico minuto. *Nuculae* subtrigonae, apice truncato-rotundatae, minute papillosae, disco cupuliforme antice paulo altiore cinctae.—*L. dasyphylla*, Drège, Zwei Pfl. Docum. p. 198. *L. malacophylla*, Guerke in Engl. Jahrb. vol. xxii. p. 142. —S. A. SKAN.

The genus *Leonotis* comprises about twenty species, all but one of which are limited to Tropical or South Africa. The exception, *L. nepetaefolia*, R. Br., is widely distributed in tropical regions, being found in the Mascarene Islands, Tropical Asia and America, apparently often as a weed. *L. Leonurus*, R. Br., a deservedly popular winter-flowering greenhouse plant and the most attractive of the genus, is a native of the Cape, and like many Cape plants has become naturalised in West Australia (Benth. Fl. Austral. vol. v. p. 74). This species has been in cultivation since 1712, and was figured in this work under the name of *Phlomis Leonurus*, Linn., at t. 478, more than a century ago. A few other species have been introduced into gardens, such as *L. intermedia*, Lindl., *L. ovata*, Spreng., *L. dubia*, E.

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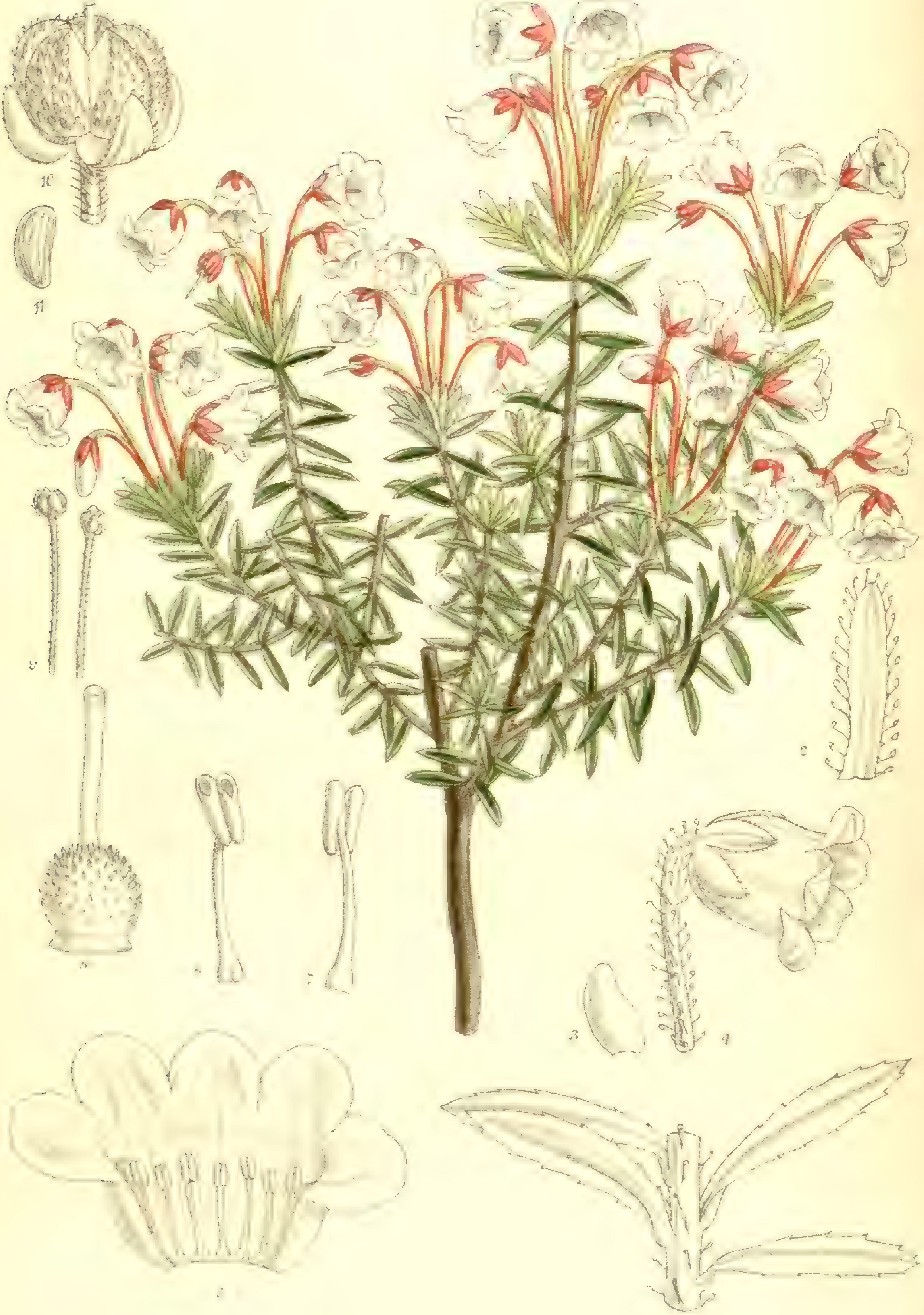
Meyer, and *L. nepetaefolia* alluded to above. The subject of our plate, *L. dysophylla*, is recorded from the Orange River Colony, the Transvaal, Transkei, Griqualand East and Natal. The plant which supplied the material for the illustration flowered in January last in the Cambridge Botanic Garden, having been raised there from seed received from Mr. G. Thorncroft, Barberton, Transvaal. The seed was sown in an Intermediate House in February; the plants were grown on and planted out of doors for the summer, and given very much the treatment of bedding plants. The more vigorous individuals were taken up in autumn and flowered in pots during the winter. The species may, Mr. Lynch informs us, be grown as an ordinary greenhouse plant under the treatment suitable for *L. Leonurus*, and, as in the case of that species, stopping must be done with discretion, so as to secure the strongest possible flowering shoots.

DESCRIPTION.—*Herb*; stems stout, 2–3 ft. high or taller, woody at the base, densely puberulous. *Leaves* ovate-lanceolate, occasionally ovate, 3–3½ in. long, over 1 in. wide, obtuse or subacute, narrowed to the base, rather regularly crenate or crenate-serrate, shortly softly pubescent or often densely villous, especially beneath, often rather thick; petiole ⅔–1½ in. long. *Verticillasters* solitary or two superposed, large and many-flowered; bracteoles linear, ⅓–⅔ in. long, spinescent at the tip; pedicels over 1 lin. long. *Calyx* almost tubular, incurved, ¾–1 in. long, adpressed puberulous; teeth 8, spinescent, the uppermost deltoid-ovate, 2–3 lin. long, much larger than the rest. *Corolla* orange, 1–1⅓ in. long, incurved, densely villous outside above; tube almost cylindric, as long as the calyx-tube; upper lip oblong, concave, ⅔–¾ in. long, entire; lower lip 3-lobed, 4–5 lin. long, mid-lobe obovate, retuse, 3–4 lin. long, lateral lobes elliptic, rather shorter. *Stamens* ascending under the upper lip; filaments villous. *Style* ultimately rather longer than the stamens, 2-fid, the posterior lobe very small. *Nutlets* somewhat trigonous, with truncately rounded tips, finely papillose; disk cupular, rather deeper in front.

Fig. 1, flower; 2, corolla-tube laid open, showing the stamens; 3 and 4, anthers; 5, ovary and disk; 6, upper portion of style:—*all enlarged*.

8405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TAB. 8405.

PHYLLODOCE AMABILIS.

North America.

ERICACEAE. Tribe PHYLLODOCEAE.

PHYLLODOCE, *Salisb. Par. Lon.* t. 36; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 595; *Maxim. in Mém. Acad. Pétersb.* sér. 7, vol. xvi. no. 9, p. 5; *Drude in Engl. & Prantl, Nat. Pflanzenf.* vol. iv. pars 1, p. 40.

Phyllodoce amabilis, *Stapf*; species *P. empetriformi*, A. Gr., et *P. intermediae*, A. Gr., affinis, ab utraque corolla campanulata late aperta fere tota alba et filamentis quam antherae parvae plus quam duplo longioribus distincta.

Fruticulus circiter 15 cm. altus, ramis erectis rigidis dense foliatis, ramulis praeter setulas nigricantes glanduligeras sparsas lineis minute puberulis notatis. *Folia* creberrima, subsessilia, linearia, obtusa, marginibus arcte revolutis, 6-8 mm. longa, 1·2-1·5 mm. lata, supra laevia, glaberrima, subtus ob costam validam et margines revolutas bisulcata, in costa densissime albo-papillosa, ad flexuras minute spinuloso-serrata vel in summis glanduloso-ciliata. *Flores* ad apices ramorum 5–7, congesti, axillares; pedicelli filiformes, 2-2·5 cm. longi, rubescentes, glanduloso-pubescentes, basi prophyllis binis ovatis obtusis valde concavis viridibus circumdati. *Sepala* ovata, subacuta, 2·5 mm. longa, praeter margines superiores ciliolatas glabra, rubra. *Corolla* campanulata, late aperta, 5–7 mm. longa, lobis late rotundato-ovatis 1·5 mm. longis, lactea cum loborum apicibus roseis et ima basi lineis roseis notata. *Filamenta* glabra, tenuia, 2–2·5 mm. longa; antherae 1 mm. longae. *Ovarium* glanduloso-papillosum; stylus 3 mm. longus, inclusus. *Capsula* depresso-globosa, 2·5 mm. alta, 3 mm. diametro, superne pilis brevibus glanduligeris induratis submuriculata. *Semina* oblique oblonga vel semiellipsoidea, subacuta, 0·6–0·7 mm. longa, pallide brunnea, testa longitudinaliter striata.—O. STAPF.

The *Phyllodoce* here figured is one of the daintiest of the *Ericaceae*, forming neat dense tufts of erect stems a few inches high. It is cultivated at Kew in a mixture of peat, leaf soil and sand, and flowers profusely in May, the plant being then almost hidden by the pinky white bells. It is admirably adapted for a moist nook in the Rock Garden where there is peaty soil. If a spot can be selected where a boulder throws a shadow over the plant for a few hours about midday but otherwise leaves it fully exposed it would be an advantage. The origin of our plant is obscure. It may be said to come nearer to *P. intermedia* than it does to *P. empetriformis* on account of its small short anthers, but

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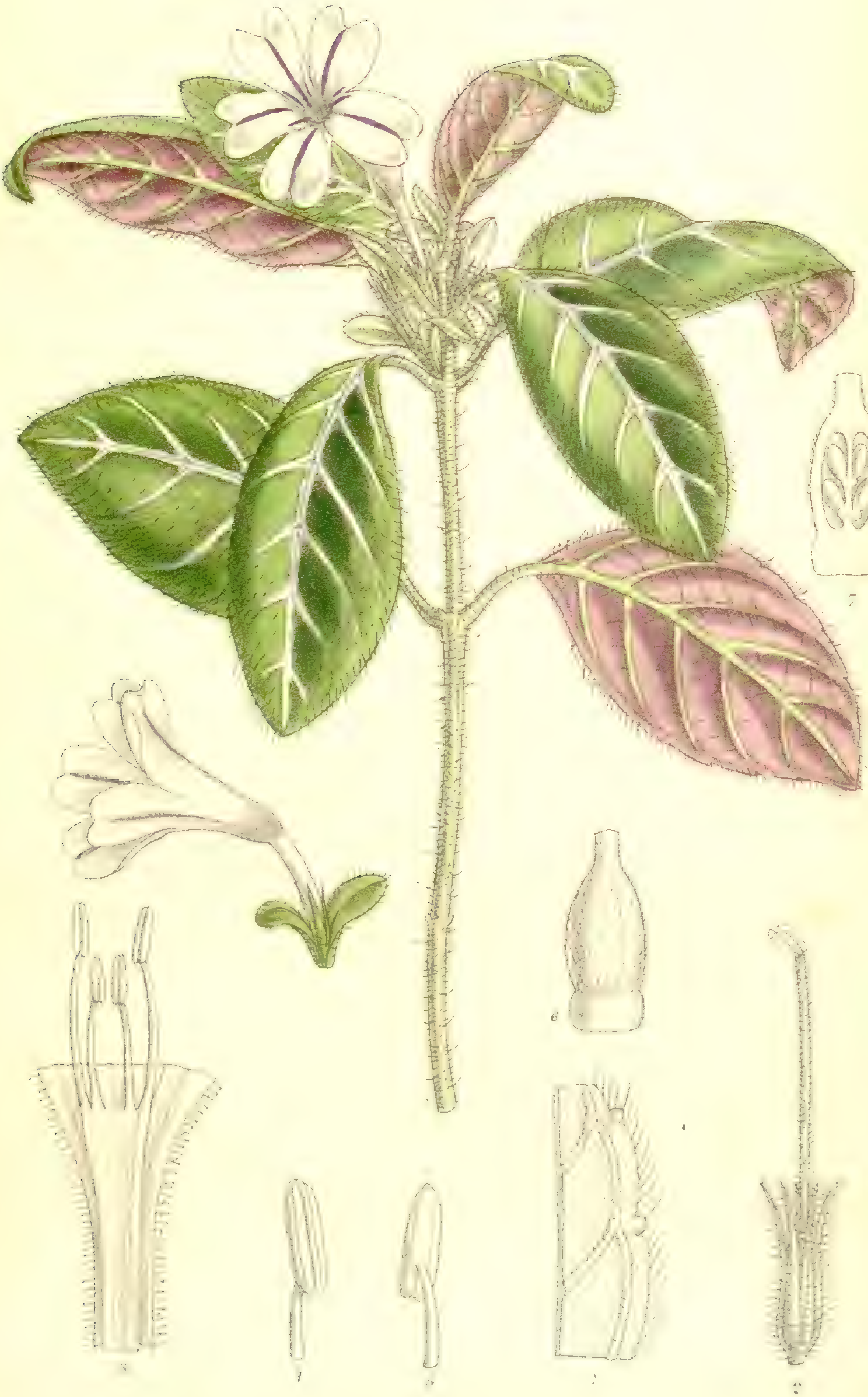
it differs from both these well-known species in the white, widely campanulate and not urceolate corollas. The anthers indeed at first sight suggest that they may be imperfect and that the plant is a hybrid, but they contain pollen which appears to be quite normal, and the plant besides produces abundant seed. There is little doubt that it is a native of the Rocky Mountains or of the Cascade Range, the habitat of *P. empetriformis* and its immediate allies, but as to the exact home of the charming plant now described we are at present without a clue. It is easily propagated by cuttings in sandy peaty soil made in July and placed in a close slightly heated frame.

DESCRIPTION.—*Shrublet*, about 6 in. high; branches erect, rigid, closely leafy; twigs sparsely beset with blackish glandular setae and lines of minute hairs. *Leaves* close-set, subsessile, linear, obtuse, with distinctly recurved edges, 3–4 lin. long, under 1 lin. wide, smooth and glabrous above, beneath 2-sulcate owing to the stout midrib and the reflexed edges, densely white papillose along the midrib, finely spinulose serrate or, in the upper leaves, glandular ciliate in the folds. *Flowers* in clusters of 5–7 at the tips of the twigs, axillary; pedicels filiform, $\frac{3}{4}$–1 in. long, reddish, glandular pubescent, surrounded at the base by a pair of ovate, obtuse, very concave green bracts. *Sepals* ovate, subacute, over 1 lin. long, glabrous except on the ciliolate edges, red. *Corolla* campanulate, opening widely, $2\frac{1}{2}$–$3\frac{1}{2}$ lin. long, lobes wide rounded, ovate, under 1 lin. long, white with the tips of the lobes pink and with rose-coloured lines at the base. *Filaments* glabrous, slender, about 1 lin. long; anthers $\frac{1}{2}$ lin. long. *Ovary* glandular papillose; style $1\frac{1}{2}$ lin. long, not exserted. *Capsule* depressed-globose, $1\frac{1}{4}$ lin. long, $1\frac{1}{2}$ lin. wide, submuriculate towards the apex with short hardened glandular hairs. *Seeds* obliquely oblong or almost ellipsoid, rather pointed, very small, pale brown; testa striate longitudinally.

Fig. 1, leaves; 2, a young leaf; 3, bract; 4, flower; 5, corolla, laid open; 6 and 7, stamens; 8, pistil; 9, fruits; 10, a single capsule; 11, seed:—*all enlarged except 9, which is of natural size.*

8406



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Tab. 8406.

RUELLIA Devosiana.

Brazil.

Acanthaceae. Tribe Ruellieae.

Ruellia, *Linn.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 1077; *Lindau in Engl. & Prantl, Nat. Pflanzenf.* vol. iv. pars 3b, p. 308.

Ruellia Devosiana, *Morren in Belg. Hort.* vol. xxvii. p. 344, t. 19; species ex affinitate *R. Schauerianae*, Lindau, et *R. calvescentis*, Lind.; ab utraque indumento tactu molliter velutino et ovario undique densissime tomentello, ab illa praeterea foliorum substantia tenuiore nec subcoriacea dicenda, et bracteolis floribusque minoribus distat.

Suffrutex, 30–50 cm. altus, erectus, ramis gracilibus superne tetragonis inferne tandem teretibus cinereo-tomentello-velutinis. *Folia* elliptica vel oblonga, utrinque acuta, subintegra, ad 7 cm. longa, fere ad 3 cm. lata, molliter herbacea, novella albo-hirsuta, adulta utrinque tactu mollia, minute papilloso-velutina et insuper pilis majoribus ad margines copiosis ceterum sparsis obsita, supra saturate viridia et secundum costam albo-vittata, infra purpurea; petioli graciles, pilosi, 8–10 mm. longi. *Flores* axillares, solitarii, sessiles, versus ramorum apices siti. *Bracteolae* late oblanceolatae in basin linearem attenuatae, 12–14 mm. longae, indumento foliorum. *Calyx* fere ad basin 5-partitus, 8 mm. longus, segmentis aequalibus, tenuiter subulatis, minute pubescentibus superne longe albo-ciliatis. *Corolla* in fauce et ad loborum nervos medianos lilacino-tincta, circiter 4·5 cm. longa, extra tenuiter glanduloso-pubescens; tubus ad 1·5 cm. longus, anguste cylindricus, rectus, deinde in fauce ampliatus et subobliquus; lobi subaequales, late emarginati, 1 cm. longi, 7–10 mm. lati. *Antherae* oblongae, aequales, 2·5 mm. longae; filamenta glabra, antica 9 mm. longa, postica 5 mm. longa. *Ovarium* ellipsoideum, dense albo-cinereo-tomentellum; stylus pubescens. *Capsula* (ex autore) obovoidea. *Semina* 5–6.—O. Stapf.

According to Morren the *Ruellia* here figured was introduced from Brazil in 1875 by Messrs. Jacob-Makoy of Liège and was named *R. Devosiana* in their catalogue of 1876 in compliment to Mr. A. Devos, then in charge of the botanical collections of the University of Liège. Morren, with some reason, compares it with *R. picta*, a plant of rather doubtful status figured by Loddige in 1828, without analysis or description, at t. 1448 of the Botanical Cabinet. Lindau has treated *R. Devosiana* as identical with *R. Schaueriana*, a view which it is not convenient from the horticultural stand-

November, 1911.

point to accept, and one that could only be adopted if *R. Schaueriana* be treated as a very variable species which includes *R. calvescens* as well. A figure of *R. Schaueriana* has been given at t. 4147 of this work under the name *R. lilacina.* It differs from *R. Devosiana* in having firm, somewhat shining leaves that are almost or quite glabrous, in having larger lilac to purple flowers, and in having a different ovary. In this work, however, two other plants that approach even more closely to *R. Devosiana* than *R. Schaueriana* does have also been figured; one at t. 4366 as *Strobilanthes lactatus*, the other at t. 5106 as *Dipteracanthus calvescens.* Of these the former is readily distinguishable from *R. Devosiana*, because its leaves are very like those of *R. Schaueriana*; it differs from *R. Schaueriana* in having a more slender ovary. The latter, which is believed to be the same as *R. calvescens*, differs considerably from *R. Devosiana* as regards the indumentum on the stem and leaves and has an ovary like that of the plant figured as *Strobilanthes lactatus.* It is, however, necessary to remark that, in his review of the *Acanthaceae* under cultivation in collections, the late Col. Beddome has placed two of these four plants under *R. solitaria*, a species only known from Velloso's figure and his rather meagre description, while Nees has referred *R. solitaria* to *R. Schaueriana.* In view of this dubiety all that can with safety be said is that *R. Devosiana*, here figured, belongs to a group of species of which *R. Schaueriana* is the best-known member; that it is readily distinguishable from the other members of this group already in cultivation; and that, from the garden standpoint, it is desirable to accord it separate recognition. The plant from which the material for our figure has been obtained was received at Kew in 1903 from the Jardin des Plantes, Paris. It forms a compact little shrub and is useful to grow as a trailer or basket-plant in a warm house. Its flowers are produced in autumn.

DESCRIPTION.—*Undershrub*, 1–1½ ft. high, erect; branches slender, angular above, ultimately cylindric below, grey-velvety tomentose. *Leaves* elliptic or oblong, acute, with cuneate base, nearly entire, 2½–3 in. long, 1¼ in. wide, softly herbaceous, when young white hirsute, when full-grown soft to the touch on both surfaces, finely velvety-papillose and beset above with long hairs, rather densely along the margins, more sparingly elsewhere; upper surface dark-green with a white streak along the midrib, undersurface purple; petiole slender, 4–5 lin. long. *Flowers* axillary, solitary, sessile, towards the end of the branches. *Bracteoles* wide oblanceolate, narrowed to a linear base, 6–7 lin. long, with the same pubescence as the leaves. *Calyx* 5-partite nearly to the base, 4 lin. long; lobes equal, narrow subulate, finely pubescent and with long white hairs in the upper portion. *Corolla* white with lilac throat and lilac lines along the middle of the lobes, about 1¾ in. long, glandular pubescent outside; tube about ⅔ in. long, narrow cylindric, straight below, widening into a slightly oblique throat; lobes nearly equal, emarginate, 5 lin. long, 3–5 lin. wide. *Anthers* oblong, equal, over 1 lin. long; filaments glabrous, the anterior about 5 lin. long, the lower 2½ lin. long. *Ovary* ellipsoid, densely pale-grey tomentose; style pubescent. *Capsule* obovoid.

Fig. 1, part of leaf; 2, calyx and pistil; 3, corolla-tube, laid open; 4 and 5, anthers; 6, ovary; 7, longitudinal section of ovary:—*all enlarged.*

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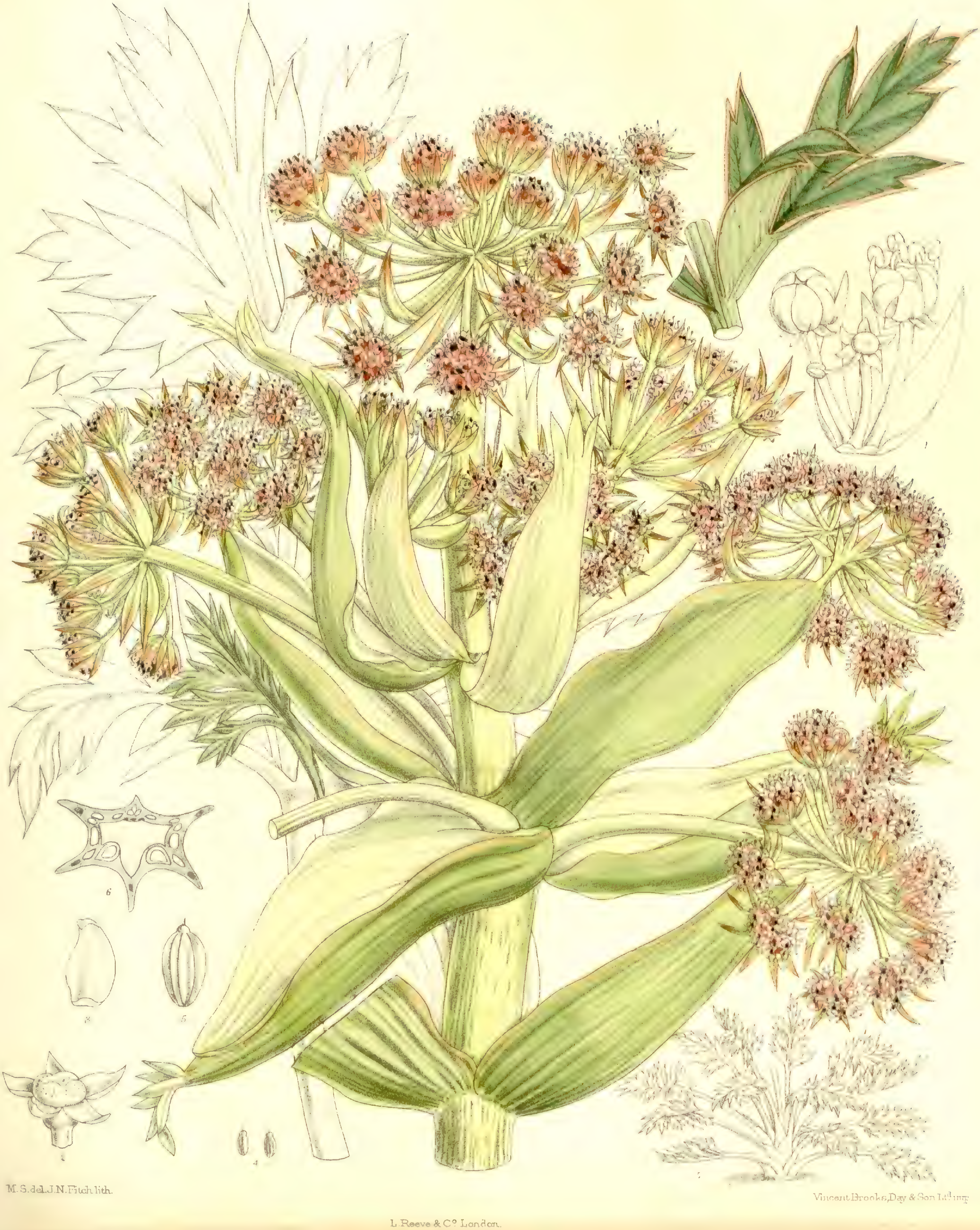

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TAB. 8407.

ACIPHYLLA LATIFOLIA.

Auckland and Campbell Islands.

UMBELLIFERAE. Tribe SESELINEAE.

ACIPHYLLA, *Forst.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 912.

Aciphylla latifolia, *Cockayne, Subantarct. Is.* pp. 188 et 197, fig. 6; species ex affinitate *A. antipodae*, a qua differt foliorum segmentis ultimis ovato-lanceolatis.

Herba robusta, 1–2 m. alta, fere undique glabra, polygamo-dioica vel dioica. *Caulis* basi usque 10–12 cm. diametro, sulcatus, sursum dense ramosus, floribundus. *Folia* crassa, coriacea, radicalia longe petiolata; 30–60 cm. longa, ovata, bipinnatisecta; segmenta ovato-lanceolata, decurrentia, apice spinosa, margine incrassata; venae, saltem in siccis, conspicuae; foliorum inflorescentiae petioli latissimi, vaginati, cymbiformes, apice paucilobati vel dentati. *Umbellae* compositae, axillares et terminales, stipitatae, folia paullo excedentes, multiradiatae, 6–10 cm. diametro. *Bracteae* lineares, acutae, radios validos subaequantes. *Bracteolae* bracteis similes, flores superantes. *Umbellulae* multiflorae. *Flores* purpurei, masculi in vivis tantum visi. *Calycis* dentes conspicui deltoidei, inaequales. *Petala* ovata, medio incrassata, longitudinaliter costata, apice recurva. *Carpella* (in siccis ab ill. Hook. f. lectis) saepius subaequaliter 5-alata, interdum 3- vel 4-alata; valleculae univittatae, vittis latis; commisura 2-vittata vittis angustis.—*Anisotome latifolia*, Hook. f. Fl. Antarct. i. p. 16, t. 8. *Ligusticum latifolium*, Hook. f. Handb. Fl. Nov. Zeal. p. 94; Cheesem. Manual, N.Z. Fl. p. 215, et Subantarct. Is. p. 408. *Calosciadium latifolium*, Endl. Gen.—W. BOTTING HEMSLEY.

The handsome Umbellifer which forms the subject of our illustration is a native of the Subantarctic Islands of New Zealand. This species, *Aciphylla latifolia*, and two other members of the same genus, *A. antipoda* and *A. acutifolia*, in association more or less with three species of the Umbelliferous genus *Pleurophyllum*, constitute jointly the most conspicuous feature in the vegetation of the Auckland and Chatham Islands. For the introduction of this species to England horticulture is indebted to Capt. A. A. Dorrien Smith, and the material for our plate, which was sent from the garden of Mr. T. A. Dorrien Smith, Tresco Abbey, Isles of Scilly, has come from the first plant of this species to flower in this country. The plant in question is a male specimen, and unfortunately so far female flowers are not

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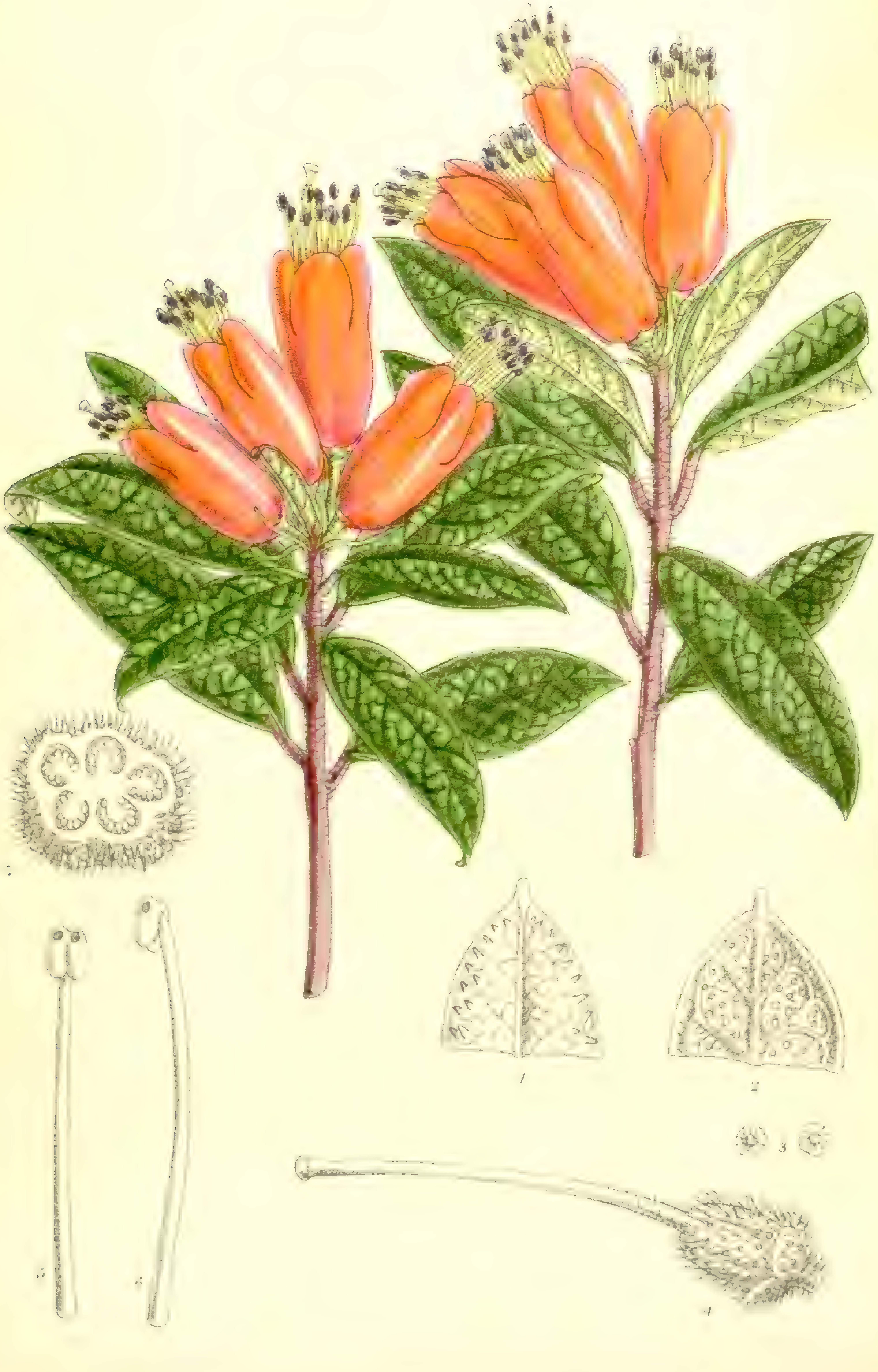
available; to complete the plate a drawing by Miss J. J. Clark of ripe fruits, collected by Sir J. D. Hooker, and one of a transverse section of the same, have been added. The genus *Aciphylla* is in some regards the southern representative of the northern *Ligusticum*, and Mr. Hemsley has followed the "Genera Plantarum" of Bentham and Hooker in referring this plant to the former rather than the latter genus. This course has also been adopted by Dr. Cockayne, whose personal knowledge of the islands in which it occurs is so extensive. But the *Umbelliferae* of New Zealand stand in need of generic revision, and Mr. Cheeseman has suggested, with some reason, that the genus *Anisotome*, proposed many years ago by Sir J. D. Hooker, should be revived for the accommodation of *A. latifolia* and its undoubted congeners.

DESCRIPTION.—*Herb*, almost everywhere glabrous, polygamo-diœcious or diœcious. *Stem* stout, 3–7 ft. high, 4–5 in. thick at the base, furrowed, densely branched upwards, many-flowered. *Leaves* thick, leathery, the radical long-stalked, 1–2 ft. long, ovate, twice pinnatisect; segments ovate-lanceolate, decurrent, with spinulous tips, their margins thickened; veins rather conspicuous; petioles of the leaves of the inflorescence very broad, sheathing, cymbiform, with few apical segments or teeth. *Umbels* compound, axillary and terminal, stipitate, rather longer than the leaves, many-branched, 2½–4 in. across. *Bracts* linear, acute, about as long as the stout umbel-branches. *Bracteoles* like the bracts but smaller, rather longer than the flowers. *Secondary umbels* many-flowered. *Flowers* purple. *Calyx-teeth* conspicuous, deltoid, unequal. *Petals* ovate, thickened in the centre, longitudinally ribbed, recurved at the tip. *Carpels* usually subequally 5-winged, sometimes only 3–4-winged; valleculae 1-vittate, vittae wide; commissure 2-vittate, narrow.

Fig. 1, a cluster of male flowers; 2, calyx and rudimentary pistil; 3, a petal; 4, fruit; 5, the same magnified; 6, section of a ripe fruit; 7, sketch of an entire plant:—*all enlarged except 4 which is of natural size and 7 which is much reduced.*



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Tab. 8408.

RHODODENDRON SPINULIFERUM.

China.

Ericaceae. Tribe Rhodoreae.

Rhododendron, *Linn. f.*; *Benth. et Hook. f. Gen. Plant.* vol. ii. p. 599.

Rhododendron spinuliferum, *Franch. Journ. de Bot.* vol. ix. (1895), p. 399; *Vilmorin in Rev. Hort.* vol. x. (1910), p. 404, cum tab.; *Hemsl. et E. H. Wils. in Kew Bull.* 1910, p. 120; floribus *R. Keysii*, Nutt. simile sed ramulorum foliorum pedicellorum calycisque indumento valde diversum.

Suffrutex, circiter 1–2·5 m. altus (ex *Forrest*); ramuli juventute griseo-pilosuli et praeterea setosi, mox subglabri cortice rubro-brunneo obtecti. *Folia* lanceolata vel oblanceolata, apice calloso-acuminata, basi acuta, 2·5–4·5 cm. longa, circiter 1 cm. lata, coriacea, supra rugulosa, subglabra, marginem versus spinulis aspera, subtus parce pilosa et squamulosa, nervis lateralibus utrinque 5–7 supra impressis subtus prominulis nervis transversis supra impressis subtus conspicuis, petiolis circiter 4 mm. longis suffulta. *Inflorescentia* terminalis circiter 4-flora; pedicelli 5–8 mm. longi. *Calyx* fere 1 mm. altus, cum pedicellis lanuginosus. *Corolla* rubra, tubulosa, apicem basemque versus leviter pedetentim contracta, glabra; tubus 14 mm. longus; lobi 5, imbricati, ovati, 9 mm. longi. *Stamina* 10, exserta, inaequalia; filamenta 22–29 mm. longa, glabra; antherae ad 2 mm. longae, atrae. *Ovarium* 4 mm. altum, lanatum et parce glandulosum: stylus stamina longiora subaequans, inferne parce puberulus.—W. G. Craib.

The *Rhododendron* which we here figure is a Chinese species originally described by Franchet from specimens collected in Yunnan by Delavay, where it has also been met with by Henry and by Forrest. For its introduction to European collections horticulturists are indebted to Mr. M. L. de Vilmorin, who has raised plants from seed sent to him by Ducloux in 1907. The material from which our illustration has been prepared was supplied by Mr. de Vilmorin from one of these plants, which flowered at Les Barres for the first time in the spring of 1910. The only species of *Rhododendron* which resembles *R. spinuliferum* in the peculiarly shaped corolla is *R. Keysii*, Nutt., figured at t. 4875 of this work. So striking is the deviation from the normal type of corolla in the genus, that *R. Keysii* has been treated as the representative of a distinct section. In other respects, however, our plant approaches more closely to *R. spiciferum*, Franch., and *R. scabrifolium*, Franch.,

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both of which have a calyx and a corolla of altogether different type. Mr. de Vilmorin remarks that in general habit *R. spinuliferum* bears a greater resemblance to *R. Augustinii*, Hemsl., than to any other species with which he is acquainted. *R. spinuliferum* is a shrub of tall thin habit, making slender shoots one foot or more in length during the growing season. The leaves are disposed evenly and regularly along the twigs, and are not clustered near the apex of a shoot as is so commonly the case in this genus. A plant presented to Kew by Mr. M. L. de Vilmorin is grown in peaty soil in a nursery, and during the coldest winter weather has required to be covered by a glass light. It has also been necessary to protect the plant from injury by spring frosts. While, therefore, we have as yet had but a brief acquaintance with this remarkable species, we fear, and in this both Mr. E. H. Wilson and Mr. G. Forrest, with their extensive Chinese experience, concur, that it will thrive in the open only in our mildest counties.

DESCRIPTION.—Small *shrub*, according to Forrest 3–8 ft. high in the wild state; twigs when young finely grey-pilose and also setose, soon however becoming glabrous; bark reddish-brown. *Leaves* lanceolate or oblanceolate, thickened-acuminate at the tip, base cuneate, 1–1¾ in. long, about 5 lin. wide, firm, rugulose above and almost glabrous, but with scattered bristles near the margin, beneath sparingly pilose and lepidote; lateral nerves 5–7 on each side, impressed above, somewhat raised beneath, transverse veins sunk above, barely visible beneath; petiole about 2 lin. long. *Inflorescence* terminal, usually about 4-flowered; pedicels 3–4 lin. long. *Calyx* very short, woolly like the pedicels. *Corolla* red, tubular, gradually and slightly narrowed towards the apex as well as the base, glabrous; tube 7 lin. long; lobes 5, imbricate, ovate, 4 lin. long. *Stamens* 10, exserted, unequal; filaments ¾–1¼ in. long, glabrous; anthers about 1 lin. long, almost black. *Ovary* 2 lin. long, woolly and sparingly glandular; style about as long as the longer stamens, sparingly puberulous below.

Fig. 1, apex of leaf, upper surface; 2, the same, lower surface; 3, scales; 4, calyx and pistil; 5 and 6, stamens; 7, cross-section of ovary:—*all enlarged*.

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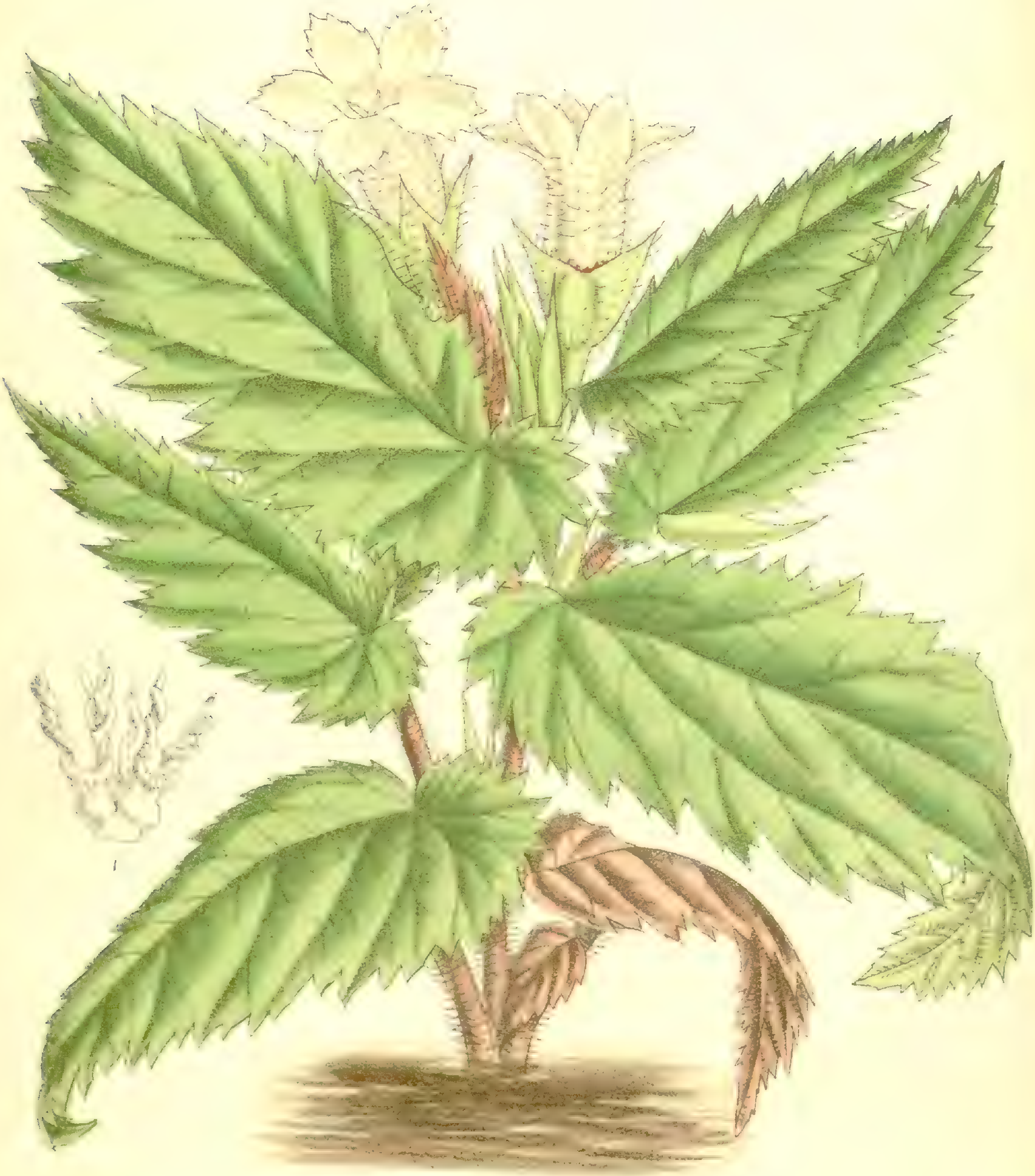

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TAB. 8409.

SYMBEGONIA FULVO-VILLOSA.

New Guinea.

BEGONIACEAE.

SYMBEGONIA, *Warb. in Eng. & Prantl, Nat. Pflanzenf.* vol. iii. pars 6 A. p. 149.

Symbegonia fulvo-villosa, *Warb.* l.c. fig. 52; *K. Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee*, p. 459; foliis conspicue duplo-serratis distincta.

Herba erecta, 13–21 cm. alta. *Caulis* rubro-tinctus, crispule villosus, superne vix ultra 2 mm. diametro. *Folia* lanceolato-oblonga, acuta, basi valde inaequilatera, latere altero valde auriculata, 6·5–7 cm. longa, 3 cm. lata, margine conspicue duplo-serrata, supra viridia, nitidula, minute punctato-foveolata, nervis valde impressis sparse inconspicue pilosulis, ceterum glabra, subtus plus minusve rubro-tincta, nervis valde prominentibus hispidulis, venulis inconspicuis, mesophyllo dense albido-punctato; petioli circiter 4 mm. longi, uti caules induti. *Stipulae* lanceolatae, costa producta caudatae, in toto 1·5 cm. longae, 3·5-4 mm. latae, pallide virides, membranaceae, cauda 4–5 mm. longa. *Flores* monoici, breviter pedicellati. ♂: *Perianthii* segmenta 2, libera, ovata, valvata. *Stamina* 12-20; filamenta pro parte majore in columnam connata; antherae basifixae, oblongo-ovatae, lateraliter dehiscentes. ♀: *Perianthium* gamophyllum, campanulatum, pallide flavum extra breviter fulvo-villosum, lobis 5 patulis ovatis denticulatis. *Ovarium* omnino inferum, trialatum, breviter inconspicue villosum, alis subtriangularibus acute acuminatis; styli 3, basi connati, profunde bifidi, superficie stigmatica spirali; placentae bilamellatae lamellis parallelis utrinque ovuliferis.—*Begonia fulvo-villosa*, Warb. ex K. Schum. & Lauterb. l.c.—T. A. SPRAGUE.

The interesting plant here figured is a member of the *Begoniaceae*, which family is now known to include five distinct genera. In two of these, *Begonia* itself and *Hillebrandia*, the segments of the perianth are distinct in both the sexes; in one of them, *Begoniella*, the segments of the perianth are united in both sexes. The remaining two genera have the perianth-segments distinct in one sex, united in the other. In *Semibegoniella* it is the male flower which has the segments of the perianth united, while those of the female flower are free. But in *Symbegonia*, the genus to which the subject of our illustration belongs, it is the female flower in which the perianth-segments are united, the male in which they are free. This genus is endemic in New Guinea, and includes four species, all of which have been discovered in Kaiser-Wilhelmsland. The plant which

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supplied the material for our figure was raised at Glasnevin from seed sent by Dr. R. Schlechter from New Guinea in 1908. Only one seed germinated and the resulting plant has been grown in an intermediate house with a minimum night temperature of 55° F. in a compost of fibrous loam, peat and leaf mould. It is of branching habit, under a foot in height. In winter most of the shoots die down to the crown. Propagation is readily effected by cuttings.

DESCRIPTION.—*Herb*, erect, 5–8 in. high; stems tinged with red, crisply hairy, about as thick as a crow-quill above. *Leaves* lanceolate-oblong, acute, very unequal at the base and strongly auriculate on one side, $2\frac{1}{2}$–$2\frac{3}{4}$ in. long, $1\frac{1}{4}$ in. wide, deeply double serrate, green, shining and finely punctulate above, finely and sparingly pubescent on the sunken nerves, but elsewhere glabrous, more or less tinged with red beneath and with prominent hispidulous nerves, the fine reticulations hardly visible and the mesophyll closely white punctate; petiole about 2 lin. long, pubescent like the stem; stipules lanceolate, their midrib produced in a slender tip about 2 lin. long, membranous, pale green, including the tip about $\frac{2}{3}$ in. long and about 2 lin. wide. *Flowers* 1-sexual, shortly pedicelled. *Perianth-segments* in the male flower 2, free, valvate, ovate. *Stamens* 12–20; filaments united in a column for most of their length; anthers basifixed, oblong-ovate; dehiscence lateral. *Perianth-segments* of female flower connate in a pale yellow campanulate tube, hairy on the outside; lobes 5, ovate, serrulate, spreading. *Ovary* quite inferior, 3-winged, wings almost triangular, sharply acuminate; styles 3, connate below, deeply 2-fid, with a spiral stigmatic surface; placentas 2-lamellate, lamellae parallel, bearing ovules on both surfaces.

Fig. 1, style arms:—*enlarged.*

8410

M.S. del. J.N. Fitch lith.

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TAB. 8410.

PITCAIRNIA TABULAEFORMIS.

Mexico.

BROMELIACEAE. Tribe PITCAIRNIEAE.

PITCAIRNIA, *L'Hérit.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 665; *Mez in DC Monogr. Phan.* vol. ix. p. 341.

Pitcairnia tabulaeformis, *Linden, Catal.* 1862, p. 5; *E. Morren in Belg. Hortic.* 1862, p 257, cum ic.; *Lemaire in Illustr. Hortic.* vol. ix. (1862), t. 344; *Flor. Mag.* vol. v. t. 297; *Baker, Handb. Bromel.* p. 109; *Mez in DC. Monogr. Phan.* vol. ix. p 447; species *P. heterophyllae*, Beer, affinis, quae foliis heteromorphis, exterioribus a basi late ovato subulatis 5 cm. longis marginibus spinosis, interioribus linearibus inermibus recedit.

Herba subacaulis. *Folia* rosulata, patentia, sublanceolata, acuta, 12 cm. longa, 3 cm. lata, superiora sensim minora, glabra, supra pseudovelutina, integerrima, undulata, anguste albomarginata, translucentia, nervis pluribus tenuibus praedita. *Inflorescentia* ante anthesin strobiliformis, demum breviter racemosa, multiflora; bracteae ovatae, virides; bracteolae oblongae, 2·5 cm. longae, lacteae, apice rubro-tinctae. *Sepala* 1·7 cm. longa, oblonga, acuminata, obscure lactea. *Petala* 5 cm. longa, lineari-ligulata, basi squamulata, aurantiaca. *Stamina* inclusa, antheris sub-sagittatis. *Ovarium* conicum, trigonum; stylus breviter exsertus; stigma trilobum, spiraliter contortum.—C. H. WRIGHT.

The *Pitcairnia* here figured is one of the most distinct and decorative members of the genus. It is now an old garden plant; it was first exhibited by Mr. Linden in 1861 or 1862; his plants had been sent from Chiapas in Mexico by Mr. Ghiesbreght. *P. tabulaeformis* differs from every other known species except *P. heterophylla*, Beer, figured at t. 4591 of this work under the name *P. exscapa*, Hook. f., in having a congested somewhat capitate inflorescence. But our species is readily distinguished from *P. heterophylla*, which has dimorphic leaves, the inner being linear and grass-like, the outer much shorter and densely spiny along the margins, by having leaves that are uniform and devoid of marginal spines. The petals in our plant are spirally twisted, but in such a manner as to reach different levels and so to impart to the flower a zygomorphic appearance. In cultivation *P. tabulaeformis* is easy of management; it does well when grown under tropical conditions in a peaty soil with an abundant supply of moisture. It ripens seed freely.

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and plants raised in this way reach a flowering condition in about two years; it may also be propagated by offsets which develop round the base of the plant after it has flowered. Our figure has been prepared from a plant which blossomed at Kew in June 1910.

DESCRIPTION.—*Herb*, almost stemless. *Leaves* rosulate, spreading, oblanceolate, acute, 4–5 in. long, 1–1¼ in. wide, gradually smaller upwards, glabrous, margin undulate but quite entire, with a narrow white border; nerves numerous, very slender. *Inflorescence* at first cone-like, at length shortly racemose, many-flowered; bracts green, ovate; bracteoles oblong, milky white or pale yellow, their tips tinged with red, about 1 in. long. *Sepals* ⅔ in. long, oblong, acuminate, yellowish-white. *Petals* 2 in. long, linear ligulate, bright orange, with basal scales. *Stamens* shortly included; anthers somewhat sagittate. *Ovary* conical, trigonous; style shortly exserted; stigma 3-lobed, spirally twisted.

Fig. 1, petal and stamen; 2, anther; 3, pistil:—*all enlarged.*

8411

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TAB. 8411.

PRUNUS SARGENTII.

Japan.

ROSACEAE. Tribe PRUNEAE.

PRUNUS, *Lindl.*; *Benth. et Hook. f. Gen. Plant.* vol. i. p. 609.

Prunus Sargentii, *Rehder in Mitteil. Deutsch. Dendrol. Gesell.* 1908, p. 159; affinis *P. serrulatae*, Lindl., sed umbellis 2–4-floris sessilibus vel subsessilibus, foliis latioribus grossius serratis dentibus vix aristatis differt.

Arbor glaberrima, ad 25 m. usque alta, trunco ad 1 m. diametro, cortice fusco lenticellis magnis instructo; rami nigrescentes. *Gemmae* anguste ovoideae, acutae, ad 10 mm. longae. *Folia* obovato-elliptica vel oblongo obovata, longe caudato-acuminata, basi rotundata vel inferiora subcordata, 6–9 cm. longa, 3–5 cm. lata, argute serrata, supra viridia, subtus glaucescentia, utrinque glabra, nervis lateralibus utrinque 7–10; petioli 1·5–2·5 cm. longi, graciles, apice glandulis 2 instructi. *Flores* rosei, 3–4 cm. diametro, in umbellis sessilibus 2–4-floris dispositi; pedicelli graciles, ad 3·5 cm. longi, basi bracteis foliaceis glanduloso-serratis suffulti. *Calyx* tubulosus, circiter 5 mm. longus; lobi ovato-lanceolati, acuti, 4–5 mm. longi, integri. *Petala* obovata, emarginata, ad 1–8 cm. longa, 1–1·4 cm. lata. *Stamina* 20–25, petalis breviora. *Ovarium* glabrum; stylus glaber, staminibus leviter superans. *Drupae* (teste Rehder) ovoideo-globosae, 10 mm. longae, 9 mm. diametro, nigro-purpureae: putamen ovoideo-globosum, leviter compressum, 9 mm. longum, 7 mm. latum, flavescenti-album, laeve, acute carinatum.—*P. Pseudo-cerasus*, Sargent, Gard. & For. vol. x. p. 462, non Lindl.—J. HUTCHINSON.

The Japanese Cherry here figured is most nearly related to *P. serrulata*, Lindl., from which it may be readily distinguished by its few-flowered, sessile or subsessile umbels and its broader and more coarsely serrated leaves, the teeth of which are hardly pointed. *P. serrulata* has long been in cultivation in European collections under the name *P. Pseudo-cerasus*, and has been figured at t. 8012 of this work under that name. This error we have been enabled to detect and remedy through the kindness of Professor Seward, who has permitted us to study the types of Lindley's two species which are preserved in the University herbarium at Cambridge. *P. Sargentii*, the subject of our plate, was first raised in the Arnold Arboretum from seeds collected in Japan in 1890 by Dr. Bigelow, and was again introduced to the same collection in 1892 by Professor Sargent who, in 1893, presented seeds to Kew. Sargent

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who, in figuring and describing the species, made the error regarding its identity, which has so long prevailed in this country with regard to the identity of *P. serrulata,* states that the timber of this tree is highly esteemed in Japan for wood-carving and for the preparation of the blocks used in printing cloth and wall-paper. In its native habitat the tree is stated to attain a height of eighty feet with a trunk three feet in diameter. Since its introduction to cultivation *P. Sargentii* has proved one of the most beautiful of single-flowered cherries. Hitherto fruits have not been freely borne in this country, but in the Arnold Arboretum trees of the same generation as those at Kew present a striking appearance in the latter part of June because of the extraordinary abundance of their small black cherries. The seeds these afford provide the best means of propagation; failing seeds the species can no doubt be budded on Mahaleb or Gean stocks. The leaves in autumn assume a beautiful dark red hue. The tree should be planted in good loamy soil in a sunny spot.

DESCRIPTION.—*Tree,* sometimes reaching 80 ft. in height; trunk reaching 3 ft. in diameter; bark tawny, beset with large lenticels; twigs blackish, glabrous. *Buds* narrowly ovoid, acute, about 5 lin. long. *Leaves* obovate-elliptic or oblong-obovate, long caudate acuminate, rounded at the base, those lowest on the twigs subcordate, 2½–3½ in. long, 1¼–2 in. wide, sharply serrate, green above, glaucescent beneath, glabrous on both sides, main nerves 7–10 on each side; petiole slender, ⅔–1 in. long, with a pair of apical glands. *Flowers* rose-coloured, 1¼–1½ in. across, in 2–4-flowered sessile umbels; pedicels slender, up to 1½ in. long, with glandular serrate basal bracts. *Calyx* tubular, about 2½ lin. long, lobes ovate-lanceolate, acute, 2–2½ lin. long, entire. *Petals* obovate, emarginate, ¾ in. long, about ½ in. wide. *Stamens* 20–25, shorter than the petals. *Ovary* glabrous; style glabrous, rather longer than the stamens. *Drupe* ovoid-globose, 5 lin. long, 4½ lin. wide, purplish-black; stone ovoid-globose, slightly compressed, 4½ lin. long, 3½ lin. wide, yellowish-white, smooth, sharply keeled.

Fig. 1, section of flower with petals removed; 2 and 3, anthers; 4, longitudinal section of the ovary:—*all enlarged.*

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